

Comment on a proposal to reinstate as available the species-group names proposed for Devonian ammonoids (Mollusca, Cephalopoda) by Sobolew (1914a, 1914b)

(Case 3600; see BZN **69**: 170–177; **70**: 45–46)

R. Thomas Becker

*Westfälische Wilhelms-Universität, Institut für Geologie und Paläontologie,
Corrensstr. 24, D-48149 Münster, Germany (e-mail: rbecker@uni-muenster.de)*

Svetlana V. Nikolaeva

*Paleontological Institute, Russian Academy of Sciences, Moscow, 117997 Russia &
International Commission on Zoological Nomenclature Secretariat, Natural History
Museum, London, U.K. (e-mail: sven@nhm.ac.uk)*

1. The names *Oma-monomeroceras (Cheiloceras) countrverneuili* and *Oma-monomeroceras (Cheiloceras) contrcurvispina* (names 6 and 7 on the list) are cited correctly by Becker & Nikolaeva (BZN **69**: 170–177). These are correct original spellings (Sobolew, 1914a, p. 44).

2. The priority of senior homonyms in the pairs of homonyms (*Oma-monomeroceras (Cheiloceras) subpartitum lativaricatum* Sobolew, 1914a; *Oma-monomeroceras (Cheiloceras) amblylobum lativaricatum* Sobolew, 1914a (14 and 15 on the list), *Gomi-re-monomeroceras (Tornoceras) planilobum avaricatum* Sobolew, 1914a and *Gomi-re-monomeroceras (Tornoceras) dorsoplanum avaricatum* Sobolew, 1914a (62 and 63 on the list), *Gomi-re-monomeroceras (Tornoceras) simplicius rotundatum* Sobolew, 1914b and *Gomi-re-monomeroceras (Tornoceras) simplificatum rotundatum* Sobolew, 1914b (71 and 73 on the list), *Gomi-re-monomeroceras (Tornoceras) simplicius subacutum* Sobolew, 1914b and *Gomi-re-monomeroceras (Tornoceras) simplificatum subacutum* Sobolew, 1914b (72 and 77 on the list) was explicitly determined by Korn & Klug (2002) in a series of First Reviser actions.

3. *Oma-monomeroceras (Aganides) discoideale* Sobolew, 1914a (51 on the list) is a junior synonym of *Oma-monomeroceras (Cheiloceras) discoideale* Sobolew, 1914a (9 on the list) as was explicitly determined by Korn & Klug (2002).

4. *Oma-monomeroceras (Cheiloceras) parvum* Sobolew, 1914a (21 on the list) is a nomen nudum and should be excluded from the ruling, as an unavailable name as well as invalid.

5. The spelling ‘*Oma-monomeroceras (Cheiloceras) umbiliferum*’ (not to be given priority over ‘*Oma-monomeroceras (Cheiloceras) umbilifer*’ under Article 24.2.3 of the Code, First Reviser Action by Becker & Nikolaeva (BZN **69**: 170–177) is used by Sobolew (1914a in the explanation of Plate 8, fig. 8).

6. Priority of *Oma-monomeroceras (Cheiloceras) longilobum* Sobolew, 1914a over *Oma-monomeroceras (Cheiloceras) sacculus longilobum* Sobolew, 1914a, Priority (17 and 18 on the list) is established under Article 57.7 of the Code.

7. Names introduced as ‘var.’ by Sobolew (1914 a, b) are available under Article 45.6.4 – Sobolew did not expressly give them an infrasubspecific rank, and the content of the work does not unambiguously reveal that the names were proposed for infrasubspecific entities.

Below is the list of Sobolew's names with updated annotations:

An annotated list of specific names established by Sobolew (1914a, 1914b), with reference to taxonomic treatments by subsequent authors (The full list demonstrating the taxonomic treatment and usage is held by the Commission Secretariat)

The 35 taxa listed in bold have been regarded as valid by all/most subsequent authors and, therefore, would most likely have to be re-named if Sobolew's names continued to be considered unavailable. Those among them marked by † are based on juveniles and might eventually prove to have available synonyms. The unmarked non-bold names are generally considered as junior synonyms. The 26 additional names marked by * have been regarded as valid by some authors. Six junior homonyms and one nomen nudum that will remain invalid are marked by (-).

Genus *Oma-monomeroceras* (*Cheiloceras*)

1. ***acrilobum*** Sobolew, 1914a, p. 48;
2. ***acutilobum*** Sobolew, 1914a, p. 35;
3. **subpartitum angustivaricatum* Sobolew, 1914a, p. 37;
4. **arcuatovaricatum* Sobolew, 1914a, pp. 51–52;
5. **avaricatum* Sobolew, 1914a, p. 48;
6. **contrcurvispina* Sobolew, 1914a, p. 44;
7. **contrverneuili* Sobolew, 1914a, p. 44;
8. ***depressum*** Sobolew, 1914a, p. 49;
9. ***discoideale*** Sobolew, 1914a, p. 31 (priority established by Korn & Klug (2002) over (*Aganides*) *discoideale* Sobolew, 1914a);
10. **discotransversale* Sobolew, 1914a, pp. 46–47;
11. ***glabrum*** Sobolew, 1914a, p. 48;
12. ***globosoides*** Sobolew, 1914a, p. 42;
13. **globulare* Sobolew, 1914a, p. 49;
14. *subpartitum lativaricatum* Sobolew, 1914a, p. 36 (priority established by Korn & Klug (2002) over *amblylobum lativaricatum* Sobolew, 1914a);
15. (-) *amblylobum lativaricatum* Sobolew, 1914a, p. 41;
16. **lenticulare* Sobolew, 1914a, pp. 49–50;
17. ***longilobum*** Sobolew, 1914a, p. 30 (priority over *Oma-monomeroceras* (*Cheiloceras*) *sacculus longilobum* Sobolew, 1914a (p. 42) is established under Article 57.7 of the Code);
18. (-) *sacculus longilobum* Sobolew, 1914a, p. 42;
19. **multivaricatum* Sobolew, 1914a, p. 31;
20. *discoideale* var. *parvum* Sobolew, 1914a, p. 31 (available under Article 45.6.4);
21. (-) *parvum* Sobolew, 1914a, p. 69 (nomen nudum);
22. ***postinversum*** Sobolew, 1914a, p. 43;
23. *Ch. praeglobosum* Sobolew, 1914a, p. 43
24. ***praelagowiense*** Sobolew, 1914a, p. 31;
25. ***praelentiforme*** Sobolew, 1914a, p. 34;
26. *praepolonicum* Sobolew, 1914a, p. 35;
27. ***rotundum*** Sobolew, 1914a, p. 44;
28. ***semiinversum*** Sobolew, 1914a, p. 46;
29. **simplicissimum* Sobolew, 1914a, p. 44;
30. **sinuvaricatum* Sobolew, 1914a, p. 51;

31. †*subcostatum* Sobolew, 1914a, p. 52;
32. *subinversum* Sobolew, 1914a, p. 43;
33. **sublagowiense* Sobolew, 1914a, p. 31;
34. **sublentiforme* Sobolew, 1914a, p. 30;
35. **sublentitransversale* Sobolew, 1914a, p. 47;
36. **subsinuvaricatum* Sobolew, 1914a, p. 51;
37. *tenu* Sobolew, 1914a, p. 50;
38. **transversale* Sobolew, 1914a, p. 45–46;
39. *umbilifer* Sobolew, 1914a, p. 53. Hereby we select the spelling *umbilifer* as the correct original spelling over *umbiliferum* under Article 24.2.3 of the Code.

β-Oma-dimeroceras (*Sporadoceras*)

40. **curvispina* Sobolew, 1914a, p. 33;
41. *kielcense* Sobolew, 1914a, p. 32;
42. *lagowiense* Sobolew, 1914a, p. 32;
43. *nux* Sobolew, 1914a, p. 40;
44. **polonicum* Sobolew, 1914a, p. 39;
45. *praevaricatum* Sobolew, 1914a, p. 36;
46. **subvaricatum* Sobolew, 1914a, p. 35.

α-Oma-dimeroceras (*Dimeroceras*)

47. *globosum* Sobolew, 1914a, p. 42;
48. *lentiforme* Sobolew, 1914a, p. 34;
49. †*umbilicatum* Sobolew, 1914a, p. 54.

Oma-monomeroceras (*Aganides*)

50. **atavum* Sobolew, 1914a, p. 37;
51. *discoideale* Sobolew, 1914a, p. 37;
52. *sulcatum* var. *globus* Sobolew, 1914a, p. 40 (would be available under Article 45.6.4);

α-Oma-dimeroceras (*Praeglyphioceras*)

53. *lagowiense* var. *globulare* Sobolew, 1914a, p. 40 (would be available under Article 45.6.4);
54. *kielcense* Sobolew, 1914a, p. 39;
55. **lagowiense* Sobolew, 1914a, p. 39;
56. †*niwae* Sobolew, 1914a, p. 48.

Oma-re-protomeroceras [assigned to *Prolobites* by Sobolew (1914a, p. 25)]

57. *umbilicatum* Sobolew, 1914a, p. 54.

Gomi-monomeroceras (*Tornoceras*)

58. *kielcense* Sobolew, 1914a, p. 57;
59. †*sublentiforme* Sobolew, 1914a, p. 56.

Gomi-re-monomeroceras (*Tornoceras*)

60. *planilobum angulatolobatum* Sobolew, 1914b, p. 355;
61. *planilobum arcuatolobatum* Sobolew, 1914b, p. 353;
62. *planilobum avaricatum* Sobolew, 1914a, p. 60; (priority established by Korn & Klug (2002) over *dorsoplanum avaricatum* Sobolew, 1914a).
63. (-) *dorsoplanum avaricatum* Sobolew, 1914a, p. 65;
64. †*curvidorsatum* Sobolew, 1914a, p. 59;
65. *evolutum* Sobolew, 1914a, p. 68;
66. **flexuosum* Sobolew, 1914a, p. 62;

67. *genulobatum* Sobolew, 1914b, p. 358;
68. (-) *planilobum ornatum* Sobolew, 1914b, p. 356 (probable secondary junior homonym of *Prototornoceras ornatum* Dybczynski, 1913);
69. †*planilobum* Sobolew, 1914a, p. 59;
70. *genulobatum planum* Sobolew, 1914b, p. 358;
71. *simplicius rotundatum* Sobolew, 1914b, p. 361; (priority established by Korn & Klug (2002) over *simplificatum rotundatum* Sobolew, 1914b);
72. *simplicius subacutum* Sobolew, 1914b, p. 360; (priority established by Korn & Klug (2002) over *simplificatum subacutum* Sobolew, 1914b);
73. (-) *simplificatum rotundatum* Sobolew, 1914b, p. 361;
74. †*simplicius* Sobolew, 1914a, p. 63;
75. †*simplificatum* Sobolew, 1914a, p. 63;
76. †*sinuvaricatum* Sobolew, 1914a, p. 59;
77. (-) *simplificatum subacutum* Sobolew, 1914b, p. 360;
78. *umbilicatoides* Sobolew, 1914a, p. 64;
79. **umbilicatum* Sobolew, 1914a, p. 61.
- Gomi-re-protomeroceras** [assigned by Sobolew (1914a, p. 28) to *Mimoceras*]
80. *alobatum* Sobolew, 1914a, p. 61;
81. **simplicissimum* Sobolew, 1914a, p. 63.
- Gomi-monomeroclymenia** [assigned by Sobolew (1914a, p. 28) to *Oxyclymenia* or *Cyrtoclymenia*]
82. **Humboldti flexilobata* Sobolew, 1914a, p. 64;
83. *Humboldti genulobata* Sobolew, 1914a, p. 66;
84. *curvidorsata planiloba* Sobolew, 1914b, p. 354;
85. *Humboldti rotundata* Sobolew, 1914b, p. 361; cited by Korn & Klug (2002) as a junior subjective synonym of *Protactoclymenia humboldtii* (Pusch, 1837);
86. **subacuta* Sobolew, 1914a, p. 64; cited by Korn & Klug (2002) as a junior subjective synonym of *Protactoclymenia humboldtii* (Pusch, 1837); Dzik (2006) as a valid species of *Cyrtoclymenia*.
87. *Humboldti undosa* Sobolew, 1914b, p. 360; cited by Korn & Klug (2002) as a junior subjective synonym of *Protactoclymenia humboldtii* (Pusch, 1837).
- Gomi-protomeroclymenia** (assigned by Sobolew (1914a, p. 28) to *Protactoclymenia*, *Genuclymenia* or *Varioclymenia*).
88. *angustiseptata (?) subcostata* Sobolew, 1914b, p. 362;
89. *varicata* Sobolew, 1914b, p. 373.

New proposals:

The International Commission on Zoological Nomenclature is accordingly asked:

- (1) to use its plenary power to rule that 88 species-group names established by Sobolew (1914a, 1914b) (all names on the list above, except for *Oma-monomeroceras (Cheiloceras) parvum* Sobolew, 1914a, which is a nomen nudum), are available from the original publications;
- (2) to emend the entries for Sobolew (1914a, 1914b) on the Official Index of Works in Zoology to record that 88 species-group names established in these works are available from the original publications, as ruled in (1) above.

Comment on the proposed conservation of usage by designation of a replacement neotype for *Acarus putrescentiae* Schrank, 1781 (currently *Tyrophagus putrescentiae*; Acariformes, ACARIDAE)

(Case 3501; see BZN 67: 24–27)

Qing-Hai Fan

Plant Health & Environment Laboratory, Ministry for Primary Industries, Auckland, New Zealand (e-mail: qinghai.fan@mpi.govt.nz)

Zhi-Qiang Zhang

Landcare Research, 231 Morrin Road, Auckland, New Zealand & Centre for Biodiversity & Biosecurity, School of Biological Sciences, University of Auckland, Auckland, New Zealand

(for correspondence e-mail: zhangz@landcareresearch.co.nz)

We oppose the proposed conservation of usage by designation of a replacement neotype for *Acarus putrescentiae* Schrank, 1781 (currently *Tyrophagus putrescentiae*; Acariformes, ACARIDAE) (Case 3501; see BZN 67: 24–27). The case was based on insufficient evidence and erroneous perceptions of presumed disruption to stability. We also point out errors in this case, misinterpretations by authors of the case of both the rules of the Code and the work by Fan & Zhang (2007a, b), and also the invalid nomenclatural act by Klimov & OConnor (2009).

Lack of understanding of the Code and disregard of its rules by authors of Case 3501

Robertson (1959) designated a male from the Netherlands as the neotype for *Acarus putrescentiae*, without evidence that it was consistent with the original description. An application (Case Z.N.(S.)1450) to place *putrescentiae* Schrank, 1781 as fixed by Robertson's neotype on the Official List was, however, approved by the Commission in 1981 (BZN 38: 125–129). In the discussion of this case, Klimov & OConnor commented: 'the numerous leg setae and the free palps protruding from the gnathosoma clearly indicate that Schrank's mite specimen (Schrank, 1776, Fig. 28) does not even belong to Astigmata.' They then concluded: 'The Commission, however, approved the proposal in Opinion 1298 (BZN 42: 124–126 (1985)). Robertson's taxonomic concept of *T. putrescentiae* was universally followed thereafter.' It should be noted that the Commission approved the designation of the neotype for *A. putrescentiae* by Robertson (a nomenclatural decision), and not her taxonomic concept of the species. Opinion 1298 ruled that the name *putrescentiae* Schrank, 1781 should be typified by Robertson's neotype, eliminating previous confusion.

Fan & Zhang (2007b) first showed that the material identified as *T. putrescentiae* by Robertson actually included two species ('A' and 'B'). They followed Opinion 1298 to apply the name *putrescentiae* to species 'A' typified by the neotype. This is strict application of the rules of the Code. Species B was named *T. communis* Fan & Zhang, 2007b.

Klimov & OConnor (2009, p. 109), however, ignored Opinion 1298 and identified species B as their '*T. putrescentiae*' with their own new type fixation as follows: 'Type material – Neotype (designated here): male – from culture maintained in the Crop

Research Institute (Prague, Czech Republic), started from specimens collected in Czech Republic, Buštěhrad, grain store, April 1996, received via J. Hubert, UMMZ BMOC 08–1010–002; Neoparatypes: 6 males, 4 females, 1 TN, 1 PN –same data as for neotype. Specimens deposited in UMMZ.’

Klimov & OConnor (2009, p. 109) not only designated a neotype in violation of Articles 75.4 and 80.9 of the Code, but also 12 ‘Neoparatypes’. While the Code allows paratypes when holotype is designated, and also paralectotypes when lectotype is fixed, there is no provision for ‘neoparatype’, which is a term that does not exist in the Code. The above shows the lack of understanding of the Code and disregard of its rules by the authors of Case 3501.

Lack of sufficient evidence for ‘prevailing usage’ in Case 3501

The prevailing usage of a name is clearly defined in the Glossary of the Code as the usage ‘adopted by at least a substantial majority of the most recent authors concerned with the relevant taxon, irrespective of how long ago their work was published’. The key here is ‘at least a substantial majority of the most recent authors’—a condition clearly not met by the evidence cited in the case. The case claimed (BZN 67: 25): ‘An extensive survey showed that the common species, under the name *T. putrescentiae*, was involved in the majority of studies published during the past 20 years. The rare species was involved in only one of 31 published studies (14 authors) (Klimov & OConnor, 2009, Table 3, p. 99).’

However, they also noted (BZN 67: 26): ‘There are hundreds of studies on *T. putrescentiae* and thousands of DNA sequences in GenBank (Klimov & OConnor, 2009, Table 1, p. 97); unfortunately, not all authors involved preserved vouchers for their studies or responded to our inquiries.’

For hundreds of studies on *T. putrescentiae*, a sample of 31 published studies by 14 authors in Klimov & OConnor (2009) is a very small minority. Also, it is a very biased sample towards laboratory-reared material. It is important that at least a substantial majority of the works by most recent authors be examined to establish the prevailing usage of the name as defined in the Code. This cannot be resolved by a survey of a small non-random sample. The fact that ‘not all authors involved preserved vouchers for their studies or responded to our inquiries’ cannot be used as an excuse for not examining the usage of the name in a substantial majority of the works by most recent authors. Taxonomists in different countries have better access to their own material. They should be given the chance to re-examine their material identified as ‘*T. putrescentiae*’ in light of the new findings of Fan & Zhang (2007b). Klimov & OConnor (2009) made the decision that their view based on a small sample was the correct one and designated a neotype illegitimately for a name that already had a neotype designated by Robertson and most importantly approved by Opinion 1298 after discussions and debates. The second neotype designation violates Articles 75.4 and 80.9 of the Code.

Klimov & OConnor claimed in Case 3501 that *T. putrescentiae* fixed by the neotype in Opinion 1298 is a ‘rare species’, based on their own small sample. They did not mention that Fan & Zhang (2007b) examined some 60 specimens available to them and showed that (1) *T. putrescentiae* fixed by the neotype approved by Opinion 1298 is widely distributed in the world: Palearctic (Germany, Netherlands, China, Japan), Nearctic (U.S.A.), Neotropical (Brazil, Ecuador), Oriental (China, Taiwan) and

Australian (Australia, New Zealand); (2) *T. communis* is a widely distributed species: Palearctic (China, Crete, Germany, Greece, Italy, Japan, Malta, Netherlands, Spain, Turkey, U.K.), Nearctic (U.S.A.), Neotropical (Argentina, Brazil, Chile, Ecuador, Jamaica), Ethiopian (Madagascar, West Africa), Oriental (Hong Kong, India, Indonesia, Philippines, Singapore, Taiwan, Thailand) and Australian (Australia, Cook Is., Fiji, New Zealand, Papua New Guinea, Samoa, Solomon Is., Tonga, Tokelau Is., Vanuatu). Fan & Zhang's (2007b) study was focused on the Australian fauna and the slightly wider distribution of *T. communis* is a reflection of the material available to them. It is important that taxonomists from different countries revise their own material previously identified as '*T. putrescentiae*'. The data in Fan & Zhang (2007b) was overlooked by Klimov & OConnor (2009) in their count to establish the so-called 'prevailing usage'. The proportion of material studied so far after '*T. putrescentiae*' s.l. was split into two species is so small that it is premature to claim which species is more rare or common by a substantial majority.

Inaccurate perceptions of presumed disruption to stability by authors of Case 3501

Even if Klimov & OConnor had sufficient evidence for the prevailing usage of their '*T. putrescentiae*', it remains to be seen if there will be presumed disruption to stability if the neotype approved in Opinion 1298 is maintained. Acarologists have shown that they prefer to follow the rules of the Code rather than usage. *Varroa jacobsoni* was the name used for an important bee parasite known widely in literature. Anderson & Trueman (2000), after studying mtDNA Co-I gene sequences and morphological characters of many *V. jacobsoni* from many parts of the world considered it to be a species complex and split it into two species: *Varroa jacobsoni* sensu stricto infests *Apis cerana* in the Malaysia-Indonesia region only, whereas *Varroa destructor* Anderson & Trueman, 2000 infests its natural host *A. cerana* on mainland Asia, and also infests *A. mellifera* L. worldwide (except Australia). The usage of the name *Varroa jacobsoni* was 100% before 2000, but the name *V. destructor* has been widely accepted for this economically important species since 2000 (Table 1). Applied biologists are flexible and receptive to nomenclatural changes.

Table 1. Search results for '*Varroa jacobsoni*' and '*Varroa destructor*' in the number of papers in *Zoological Record*; search done 16 May 2014:

	1990–1999	2000–2009	2010–2014
<i>Varroa jacobsoni</i>	268	52	2
<i>Varroa destructor</i>	0	179	129

Misinterpretations by the authors of this case of the work of Fan & Zhang (2007a, b)

Klimov & OConnor (2009, p. 96) claimed: 'Fan & Zhang (2007b) proposed a new name, *Tyrophagus communis*, without considering previously described taxa.' It is not true. Klimov & OConnor (2009) listed nine species, *T. americanus*, *T. breviceps*, *T. cocciphilus*, *T. longior* var. *castellanii*, *T. australasiae*, *T. neotropicus*, *T. amboinensis*, *T. nadinus* and *T. communis* as synonyms of their '*T. putrescentiae*'. In fact, we examined type specimens of *T. americanus* Banks, 1906, *T. breviceps* Banks, 1906, *T.*

cocciphilus Banks, 1906, *T. australasiae* Oudemans, 1916, *T. neotropicus* Oudemans 1917 and *T. communis* Fan & Zhang, 2007b, and specimens of *T. longior* var. *castellanii* Hirst identified by Robertson (Fan & Zhang, 2007b; unpublished material). *Tyrophagus nadinus* Lombardini, 1944 was not obtained (it was synonymised with *T. putrescentiae* by Robertson, 1959). We restored *T. vanheurni* (Fan & Zhang, 2007b) and synonymised *Povelsenia neotropicus* with *Tyrophagus putrescentiae* (Fan & Zhang, 2007a). Our results on *T. americanus*, *T. breviceps* and *T. cocciphilus* have not been published. We clearly disagree with Klimov & OConnor (2009) that *Tyrophagus amboinensis* Oudemans 1925 is a synonym of their '*T. putrescentiae*' (unpublished data). Oudemans (1927) clearly showed that it is a species similar to *T. palmarum* in which the arms of penis support are turned inwards. This species is neither *T. communis* nor *T. putrescentiae* with the arms of penis support turned outwards. Most species of *Tyrophagus* (those outside of Australasia) are in serious need of revision, and the '*T. putrescentiae*' complex is likely to contain more cryptic species when molecular and other non-morphological data are explored. The best way forward is to revise all other species in the complex from various countries. The issue has not been resolved as there are disagreements between two groups (Klimov & OConnor versus Fan & Zhang). This is in the taxonomic domain and taxonomists may differ in their views. Nomenclaturally, the proposers of case 3501 can easily solve the taxonomic problem by synonymising *T. communis* with a senior name of which they are really certain of the identity and therefore the synonymy, after a full taxonomic revision of material previously identified by a substantial majority of the most recent authors as '*T. putrescentiae*' (this has not been done yet). This would be less disruptive than what is proposed in Case 3501.

Summary

The above discussion shows that Case 3501 was based on insufficient evidence of the so called 'prevailing usage' claimed by Klimov & OConnor for their '*T. putrescentiae*' and also inaccurate perceptions of presumed disruption to stability. The current neotype for *T. putrescentiae* was fixed via the plenary power of the Commission only in the 1980s. To set this aside using the plenary power of the Commission again, there must be evidence beyond any doubt for this decision. With only a small sample studied by a few taxonomists so far after the discovery of two species in the *T. putrescentiae* complex, it is premature to claim real prevailing usage by at least a substantial majority of the most recent authors concerned with *T. putrescentiae*. Until more studies are done with sufficient evidence, Opinion 1298 should be respected and the rules of the Code followed.

Additional References

- Anderson, D.L. & Trueman, J.W.H. 2000. *Varroa jacobsoni* (Acari: Varroidae) is more than one species. *Experimental and Applied Acarology*, **24**: 165–189.
- Fan, Q.-H. & Zhang, Z.-Q. 2007a. Revision of some species of *Tyrophagus* (Acari: Acaridae) in the Oudemans Collection. *Systematic and Applied Acarology*, **12**: 253–280.
- Fan, Q.-H. & Zhang, Z.-Q. 2007b. *Tyrophagus* (Acari: Astigmata: Acaridae). *Flora of the New Zealand*, **56**. 291 pp. Manaaki Whenua Press, Lincoln, New Zealand.
- Oudemans, A.C. 1925. Acarologische Aanteekeningen LXXIX. *Entomologische Berichten (Amsterdam)*, **7**: 26–34.
- Oudemans, A.C. 1927. X. Acari uit Ambon. *Zoologische Mededeelingen*, **10**: 185–237.

Comment on the proposed validation of the generic and specific names as available of *Orthezia characias* [Bosc d'Antic], 1784 (Insecta, Hemiptera, ORTHEZIIDAE)
(Case 3645; see BZN 71: 7–12)

Maurice Jansen

Ministry of Economic Affairs, Food and Consumer Product Safety Authority (PPS), National Reference Center, Geertjesweg 15, 6706 EA Wageningen, The Netherlands (e-mail: m.g.m.jansen@minlnv.nl)

My attention was drawn on the text of Case 3645, published March 2014 in the Bulletin of Zoological Nomenclature, concerning the proposed conservation of the established usage of the genus-group name *Orthezia* and species-group name *characias*, both with the author Bosc d' Antic (1784). After almost 230 years, the time that the original spelling remained unnoticed, it would be very undesirable to change the name and combinations. Therefore I support the opinion of the authors expressed in the title to validate the generic and specific names as available. This will avoid confusion; a stable name is of vital importance in the management of pest species.

Comments on *Tibicina* Amyot, 1847 and *Lyristes* Horváth, 1926 (Insecta, Hemiptera, Homoptera): proposed conservation by the suppression of *Tibicen* Berthold, 1827 [?Latreille, 1825], and concerning the type species of *Cicada* Linnaeus, 1758

(Case 239; see BZN 41: 163–184)

(1) David C. Marshall & Kathy B.R. Hill

Ecology and Evolutionary Biology, University of Connecticut, 75 N. Eagleville Rd, Storrs, CT, U.S.A.

(e-mail: david.marshall@uconn.edu—corresponding author; cicada900@yahoo.com.au)

Recent comments by Boulard & Puissant and Sanborn (BZN 71, this issue), renewing a dormant case, Z.N.(S.) 239 from 1984 by Melville & Sims (BZN 41: 163–184), represent the fourth time in the past 68 years in which problems involving the genus name *Tibicen* Latreille, 1825/Berthold, 1827 and its family-group derivatives have been raised before the ICZN.

Issues and proposals center on two problems: (1) the priority of *Tibicen* Latreille, 1825 (or Berthold, 1827, its German translation) over *Lyristes* Horváth, 1926 and *Tibicina* Kolenati, 1857, and (2) confusion caused by family-group names based on *Tibicen* and *Tibicina* and differing by just one letter. Strikingly different interpretations have been taken on the first matter. Boulard & Puissant (BZN 71 this issue) argue that both *Tibicen* Latreille, 1825 and *Tibicen* Berthold, 1827 are nomina nuda, a conclusion not reached in the Melville & Sims (BZN 41: 163–184) proposal or the earlier China (1964) petition, and that *Tibicen* was made available by Latreille (1829) under a completely different concept from that in current usage. Boulard & Puissant support the suppression of *Tibicen* Berthold, 1827 (and therefore *Tibicen* Latreille,

1825) in favor of *Lyristes* Horváth, 1926, as in Alternative A of Case Z.N.(S.) 239, and they request suppression of *Tibicen* Latreille, 1829. However, Sanborn (BZN 71 this issue) has contested the nomen nudum argument and pointed out that the family-group confusion of the mid-20th century has been reduced by recent revisions, especially Moulds (2005). In the numbered arguments below, we concur with Sanborn that the Code supports the availability of *Tibicen* Latreille, 1825 (or Berthold, 1827, pending a ruling on the intended language of the name). We correct errors made in the original case and in relevant literature, and we develop arguments not made by Sanborn or Boulard & Puissant (BZN 71 this issue), especially regarding questions about the type of *Cicada* Linnaeus.

1. *Tibicen* Latreille, 1825 is not a nomen nudum. Boulard & Puissant (BZN 71 this issue) argue that Latreille's text 'Les g. CIGALE, TIBICEN (*c. plebeia*)' (p. 426) is ambiguous and does not satisfy the requirements of the Code for availability. Most importantly, they argue that the epithet *plebeia* in Berthold (1827) is not in combination with *Tibicen*, nor included in it. However, examples from Latreille (1825) listed by Sanborn (BZN 71 this issue) show that Latreille placed species in parentheses following the genera in which he intended to include them, and that his abbreviation refers to the preceding genus beginning with C, or CIGALE. An additional example not yet mentioned is found on the same page of Latreille (1825, p. 476) as the *Elater* case illustrated by Sanborn: the new genus *Chrysoptère* is followed by the parenthetical expression '(*n. concha*)', with the 'n.' referring to the genus *Noctuelle* in the preceding lines. *Chrysoptera* is now regarded as a junior objective synonym of *Lamprotes* R. L., 1817 (see Nye, 1975), as *concha* was an unnecessary replacement name for *c-aureum* Knoch, 1781.

Sanborn examines all aspects of Latreille's (1825) indication, including the lack of a specified author for *plebeia* and the i-for-j substitution (Article 58.3), and shows that Latreille made *Tibicen* available under all requirements of the Code, although uncertainty remains over the intended language for *Tibicen*. Berthold's (1827) translation is cited for many genera originally mentioned in Latreille (1825) because he transcribed Latreille's vernacular names, expanded his abbreviations, and corrected spellings. Since *Tibicen* is spelled appropriately for Latin in Latreille (1825), the Code states that Latin is to be taken as the intended language unless Latreille 'states otherwise' (Article 26). It will fall to the Commission to determine whether the authority for *Tibicen* should be Latreille (1825) or Berthold (1827). Sanborn's and our conclusions regarding *Tibicen* are largely in agreement with those of China (1964) and Melville & Sims (1984), although they trace the genus to Berthold (1827).

It is important to correct Boulard & Puissant's (BZN 71 this issue) citation of Article 67.5 in reference to the availability of *Tibicen* Latreille, 1825, because this article is not relevant. Article 67.5 defines the term 'designation', and this concept is not applied or required by Article 12, which governs names first published before 1931. 'Designation' is listed as one of several means of type fixation in Article 68, which is called by Article 13, 'Names published after 1930'. Article 12 defines and applies its own term 'indication' (Article 12.2) for judging type assignments of old names, and this less stringent method is deliberately excluded by Article 13.6.1 as a route to availability for names after 1930. We return to the issue of confusion of designation and indication when discussing a problem with the type of *Cicada* Linnaeus below (section 8).

2. The validity of *Tibicen* Latreille, 1825 is not affected by later changes made by Latreille (e.g. 1829), as suggested by Boulard & Puissant, if the former publication satisfies the requirements of the Code (Article 23.1, 'Statement of the Principle of Priority'). Boulard & Puissant appear to be correct that Latreille's publication record is contradictory, but their focus on inferring the validity of *Tibicen* Latreille, 1825 from sources other than the original publication does not follow the Code (see also Article 67.3).

3. A ruling that *Tibicen* Latreille, 1825 is a nomen nudum would imply invalidation of other names currently in use from Latreille (1825) and its translation (Berthold, 1827). Latreille was a prolific creator of genera (Dupuis, 1974). For example, 13 available genera from Berthold (1827) are listed in the NHM, London Lepidoptera database (Pitkin & Jenkins, 2014), and 13 valid genera and one family are found in an ITIS database search (ITIS, 2014), including the type genera of MYRMECOPHILIDAE, GONODACTYLOIDEA, PODISMINAE, and multiple tribes. Some accepted genera were assigned in Latreille (1825) in almost exactly the same manner as *Tibicen*, including *Lithurge* Latreille, 1825 (p. 463) with *Centris cornuta* Fabricius as type (Latinized to *Lithurgus* by Berthold, 1827 (p. 467)), *Amphimalle* Latreille, 1825 (p. 371) with type *Melolontha solstitialis* (changed to *Amphimallon* in Berthold (1827, p. 362)), and *Xylopada* Berthold, 1827 (p. 442) (see Sanborn, this issue).

4. The problems with CICADIDAE nomenclature have been reduced substantially since the proposal by Melville & Sims (1984). Only one pair of the family-group names differing by one letter remains in use (tribes TIBICININI and TIBICENINI). This situation is reviewed by Sanborn (this issue), but it should be emphasized as this was a principal motivation for the China (1964) and Melville & Sims (1984) submissions.

5. *Tibicen* Latreille, 1825 (p. 426) includes a description mentioning covered timbals, which are found in all cicadas currently included in *Tibicen*. Prevailing usage of *Tibicen*, which has been assumed by most modern authors to have the type *Cicada plebeja* Scopoli, 1763 (e.g. Metcalf, 1963, Hamilton, 1985, Moulds, 2005, Sanborn, 2014), is therefore not threatened. Note that Melville & Sims (1984, pp. 163–4) were incorrect in stating that *plebeja* does not have the characters assigned by Latreille (1825) and Berthold (1827); they were apparently confused by Latreille's later concept (Latreille, 1829, p. 215).

6. Because *Tibicen* Latreille, 1825 (or, if necessary, Berthold, 1827) is an available name, *Lyristes* Horváth, 1926 is a junior synonym and its retention would require the use of plenary powers. This action would also eliminate the remaining potential source of family-group confusion (TIBICININI/TIBICENINI). In our opinion this would be acceptable, in part because many *Tibicen* species are soon to receive new generic names following molecular and morphological revision (manuscripts in preparation). However, the case for use of plenary powers is limited by the fact that the family-group nomenclature has been stabilized since Moulds (2005).

7. With *Tibicen* established as *Tibicen* Latreille, 1825 (or as Berthold, 1827, if necessary), and with *Tibicen* Latreille, 1829 thereby unavailable, we concur with Sanborn and Boulard & Puissant that *Tibicina* Kolenati, 1857 is an available taxon with an unambiguously assigned type species, *Cicada haematodes* Scopoli, 1763. Note that Alternatives A and B of Melville & Sims (1984) must be modified in regards to this question because *Tibicina* Amyot, 1847 has been suppressed since Opinion 2165 (ICZN 2006).

8. Some arguments regarding the genus *Cicada* L. and its confusing history (reviewed best by China, 1964) appear to conflate the requirements of the Code for pre-1931 names with those for post-1930 names. Our attempt to determine the correct course of action exposes a potential problem that must be addressed in order to affirm the type of this genus as *Cicada orni* Linnaeus, 1758, as proposed by Boulard & Puissant & Sanborn.

These comments both state that the first valid type fixation for *Cicada* Linnaeus is *Cicada orni* Linnaeus, 1758 (subsequent designation by Latreille, 1802, p. 257). However, in the original text of this case, Melville & Sims (1984) stated that the valid type designation of *Cicada* is *Cicada tibicen* Linnaeus (subsequent designation by Van Duzee, 1912, p. 491), and they did not mention Latreille (1802) at all. China (1964, p. 154), reaching another conclusion, stated that Latreille's 1802 indication of *orni* was 'unacceptable as a type designation', and, perhaps unaware of Van Duzee (1912), traced *Cicada* to Van Duzee's later designation of *C. orni* in 1916. According to China (1964), Van Duzee believed in 1916 that a valid designation had been made by Lamarck (1801), but that source was later invalidated by the Commission in Opinion 79 (ICZN 1924; see also Van Duzee, 1914). China did not explain his rejection of Latreille's (1802) type, but the most likely basis for his belief is Latreille's use of the term 'example' when mentioning only *orni* under *Cicada* in 1802. Froriep (1806, p. 267) also used this term (as a German abbreviation) when associating *orni* with *Cicada*. Other authors (e.g. Orian, 1963, p. 21) and the ICZN in Opinion 79 (ICZN, 1924) have implied that 'mere examples' when offered as such are unacceptable as type species. However, some 'example' types from Latreille (1802) have been accepted, even in ICZN publications (e.g. Opinion 905 for *Polyxenus* – ICZN 1970, Opinion 1596 for *Sialis* – ICZN 1990).

This confusion seems unnecessary at first because the exclusion of examples as types is found only in Article 67.5.1, part of the definition of the 'rigorously construed' term 'designation', and pre-1931 types can be fixed by the less restrictive method of indication (Article 12) which allows for 'the use of one or more available specific names in combination with [the new genus-group name], or clearly included under it' (see also Opinion 1, ICZN 1944). These conditions at first appear to fit Latreille (1802). However, there is an important difference: Latreille (1802) was not the first instance of the name *Cicada* L., and Article 12 appears to pertain to new names only ('...every new name published before 1931 must...be accompanied by a description or a definition...or by an indication'). For instances when a pre-1931 name is established without a type fixed (as in *Cicada* Linnaeus), the Code seems to offer only one route to the later fixation of a type, 'subsequent designation' (Article 69), and this method is limited by Article 67.5, which defines the term 'designation' for Article 69 and which excludes examples (Article 67.5.1). Opinions 905 and 1596, cited above, where the ICZN accepted types from Latreille (1802), were both instances of publication of new genera.

However, there is contradiction in the record. Opinion 79 (ICZN, 1924), which invalidated Lamarck (1801) while implying the inadequacy of examples, excluded all of the types, even those that appear to qualify as indications under the current Article 12.

There do seem to be few examples of publications citing Latreille (1802) for subsequent designation despite the large number of genera in that work, although at

least one case exists – *Galeodes* Olivier 1791, type species *Phalangeum araneoides* Pallas, 1772 (subsequent designation by Latreille 1802, p. 61) (Harvey, 2003, p. 255). Many more sources cite Latreille's '*Table les genres...*' (1810) for subsequent designations, probably following Opinions 11 (ICZN, 1945) and 136 (ICZN, 1939), which explicitly affirmed that source. Overall, it is not clear if the Code excludes the less restrictive route of indication (Article 12) from the options for type fixation for pre-1931 genera that were originally published without a type fixed.

If the ICZN holds that Article 67.5 precludes the use of 'examples' from Latreille (1802) as types by subsequent designation, the valid type for *Cicada* will remain unclear. Latreille's (1810) designation of *C. plebeja* was invalid since *plebeja* was not an originally included species (Article 67.2). In the next valid act, Van Duzee (1912) designated *Cicada tibicen* Linnaeus for *Cicada*, but this species is currently classified in *Tibicen* (Sanborn 2008), which already has the type *plebeja* (Latreille, 1825, pending the ruling in this case). Fixing *C. tibicen* as the type of *Cicada* would make *Cicada* and *Tibicen* into synonyms, and *Cicada* would assert priority. This would disastrously change the meanings of CICADOIDEA, CICADIDAE, CICADINAE and CICADINI, all of which are currently in use and linked to *C. orni* Linnaeus. Fortunately, the next valid designation is *Cicada orni* again, via Van Duzee (1916), as explained by Melville & Sims (1984) and China (1964).

We hope that the ICZN will clarify this issue while reaffirming *Cicada orni* Linnaeus as the type of *Cicada* Linnaeus. This is the route of least disruption for cicada taxonomy. If the Commission interprets Article 12 to mean that all type fixations of pre-1931 genera can be accomplished by indication – those in new genera as well as those made by later revisers – then Latreille's (1802) work can be affirmed as designating *C. orni*. If the Commission chooses to uphold the prohibition of examples as types in subsequent designation, then *C. orni* can be designated by way of Van Duzee (1916) although, as explained above, this will also require invalidation of Van Duzee's (1912) designation of *C. tibicen*, a ruling that would probably require the use of the plenary powers. This may be the best solution given the complexity of the case and the overall weight of the evidence against the use of 'examples' as types.

In conclusion, we support a modified version of Alternative B of Melville & Sims (1984), which would incidentally accomplish the three actions proposed by Sanborn for *Tibicen*, *Tibicina*, and *Cicada*. A decision on whether *Tibicen* in Latreille (1825) is to be read as Latin will be required to determine whether Latreille (1825) or Berthold (1827) is the author of the name. Alternative routes are available to the Commission for the affirmation of *Cicada orni* as the type of *Cicada*, an important decision that is needed to stabilize cicada nomenclature.

Acknowledgements

The authors acknowledge criticism and guidance by M. Boulard, J. Caira, H. Duffels, Y.-J. Lee, M. Moulds, J. O'Donnell, S. Puissant, A. Sanborn and D. Yanega. The authors are supported by National Science Foundation grant DEB 09–55849 to Chris Simon, University of Connecticut.

(2) Allen Sanborn

Department of Biology, Barry University, 11300 NE Second Avenue, Miami Shores, FL 33161–6695 U.S.A. (e-mail: asanborn@barry.edu)

The issue of the validity of *Tibicen* Latreille, 1825 or Berthold, 1827 and the higher taxa derivatives was first presented to the ICZN by R.G. Fennah in 1946 with no action taken at that time. China (1964) then presented a case for the suppression of the *Tibicen* derivatives and although there was a consensus in favour of the proposal, it was realized that the family group name suppression would require the suppression of the type genus. This action would require the use of the plenary powers of the Commission and no opinion was made at that time either.

Melville & Sims (1984) then resurrected the issue and started collecting evidence to present a proposal to clarify the matter. There were specialists who supported retention of *Tibicen* and those that supported suppression in favour of *Lyristes* Horváth, 1926. Boulard (1984) wrote the main argument for suppression with additional comments by Hamilton (1985), Boulard (1985), and Lauterer (1985). There were two/three options that were ultimately proposed but once again the Commission failed to render an opinion.

Boulard (1988, 1998, 2001, 2003) has continued to campaign for suppression and the use of *Lyristes* but the majority of publications since 1984 continue to use *Tibicen* while *Lyristes* is used by some scientists in particular geographic regions (Sanborn, 2013). The basis of the argument for suppression is that *Tibicen* is a nomen nudum or was not available to be the type species of the genus, however, I will show that *Tibicen* is a valid taxon based on the information in Latreille (1825).

The historical confusion of the taxa along with the various interpretations and personal preferences has led me to examine the issue from the first mention of *Tibicen* using Latreille, 1825 and Berthold, 1827 along with the Code. Article 67.3.2 states that only information in the original text (either Latreille (1825) or Berthold (1827) in this case) is to be used in determining which taxa are included in determining what species are eligible for type fixation (Article 67.2) and these texts are where we need to focus our attention. I would make the following argument for the conservation of *Tibicen* Latreille, 1825 based on a preponderance of Articles that support *Tibicen* as a valid taxon. At the same time, the type species for *Cicada* Linnaeus, 1758 and *Tibicina* Kolenati, 1857 can also be unambiguously determined clarifying higher taxa based on these genera.

The evidence shows that Latreille, 1825 should be used as the authority for *Tibicen* rather than Berthold, 1827. There is a description included with the new taxon which is used to describe the members of the ‘Chanteuses’ of which Latreille gives two generic examples, *Cicada* and *Tibicen* with a species *C. plebeja* given as an example of *Tibicen* (Latreille’s original use of the lower-case ‘c’ and the *i* vs. *j* in *plebeja* are addressed below) (Fig. 1). By reading further in Latreille (1825) and looking at other taxa it is clear that Latreille considered *Cicada* and *Tibicen* distinct taxa as they are separated by a comma as he has done in other taxonomic groups (I will discuss and illustrate this below with examples from nearby pages to the one containing the first reference to *Tibicen*) as well as being preceded by ‘Les g.’ a plural.

Article 12.1 is satisfied in both Latreille (1825) and Berthold (1827). Article 12.1 states that ‘To be available, every new name published before 1931 must satisfy the

PREMIÈRE TRIBU.

CHANTEUSES. *Stridulantes*.

Elles ont trois petits yeux lisses et des antennes de six articles. Les mâles ont, de chaque côté de la base du ventre, un organe musical intérieur, recouvert extérieurement par un opercule.

Les g. CIGALE, TIBICEN (*c. plebeia*).

Comma separates
genera and thus
species



Position here is significant based
on presentation of species in other genera

Fig. 1. Section of Latreille (1825, p. 426) illustrating the first use of *Tibicen* as a generic name with *C. plebeja* associated with the genus.

provisions of Article 11 and must be accompanied by a description or a definition of the taxon that it denotes, or by an indication.' Articles 11.1, 11.2, 11.3, 11.4, 11.5, and 11.8 are all satisfied while Articles 11.6, 11.7, 11.9 and 11.10 are not applicable, so Article 11 is satisfied. There is a description associated with the 'Chanteuses' that is consistent with *C. plebeja* Scopoli, 1763 and Article 12.2.5 (the applicable article for the indication) states 'in the case of a new genus-group name, the use of one or more available specific names in combination with it, or clearly included under it, or clearly referred to it by bibliographic reference, provided that the specific name or names can be unambiguously assigned to a nominal species-group taxon or taxa.' It is clear from the placement of the species after *Tibicen* in parentheses and italics that Latreille was using this species as the example of the genus *Tibicen* and not as a member of the genus *Cicada*. So even if one does not accept the description in Latreille as applying to *Tibicen*, Article 12.1 is still satisfied because a species is identified with the name *Tibicen*, satisfying Article 12.2.5 and thus 12.1, since a description or indication is necessary for the name to be available. With the designation of *C. plebeja* as the example of *Tibicen* (which Berthold, 1827 clarifies as *Cicada plebeja*), Article 12.1 was satisfied and the name *Tibicen* is available. *Tibicen*, unlike *Cigale* which is the French vernacular for *Cicada*, is also a Latin word so no modification is necessary to make it available under Article 26 with the gender being masculine following Article 30.1.

Latreille and Berthold did not confirm *C. plebeja* Scopoli, 1763 as the type of *Cicada* as has been argued by Boulard & Puissant (2013; BZN 71, this issue). By placing *C. plebeja* after the comma and in parentheses after *Tibicen*, Latreille and Berthold placed the species in the genus *Tibicen* as the example of the genus. This is consistent with the presentation of other species in other taxa within Latreille (1825) and Berthold (1827) where exemplar species are placed in parentheses immediately after their associated genus in the source book, and is a very important point in the validity of *Tibicen* as a genus. We must follow the evidence that is available when the name is published following Article 67.3, not what may be published subsequently (particularly Latreille, 1829).

Looking at the original citation of '*c. plebeia*', it is true the genus is not capitalized and the species epithet is misspelled. However, the lower-case c is clearly a formatting

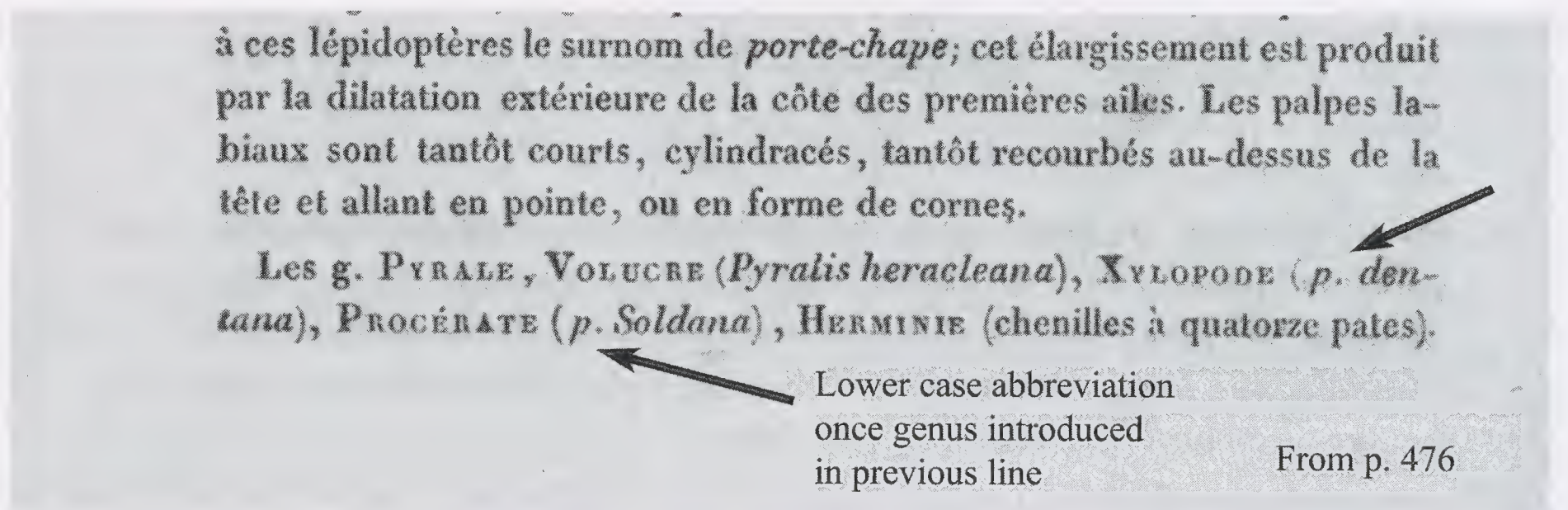


Fig. 2. Section of Latreille (1825, p. 476) illustrating the use of lower case 'p' to identify type species of new genera listed.

choice and is consistent with Latreille's style throughout the book in which he does not capitalize abbreviations of generic names. Importantly, there are many examples within Latreille (1825) where the generic name is abbreviated after the first mention of the genus in a list of genera including most cases where the generic abbreviation is in the lower-case as shown for the species of *Pyralis* assigned to new genera in Fig. 2.

Further examples are found throughout Latreille (1825) such as on p. 349 with the genus *Elater* Linnaeus abbreviated as 'e.', the multiple species of *Musca* Linnaeus identified as examples of several fly genera on pp. 497–498 being presented as 'm.', and the use of 'sc.' in a list of new genera on p. 339 to distinguish *Scarites* Fabricius from *Siagones* Latreille in the list showing that Latreille was being specific with the addition of the generic abbreviations. Latreille was clearly using exemplar species by placing the species in parentheses after the new generic name. The presentation of *C. plebeja* in italics in the parentheses after the name *Tibicen* unquestionably shows that Latreille was using it as the example of the genus *Tibicen* and the *C.* is an abbreviation of *Cicada*, the vernacular name for which (Cigale) is at the beginning of the list of cicada genera and the only valid cicada genus of the time. There is also precedence for these names to become valid. For example, *Tortrix dentana* Hübner, 1796 from the illustration above is the type species of *Xylopoda* Berthold, 1827 as Berthold changed the common vernacular name *Xylopo*de of Latreille (1825) to the Latinized *Xylopoda* and thus made a valid designation of a type species.

As for the spelling *plebeia*, under Article 58.3 'the use of *i* or *j* for the same Latin letter is deemed to be identical variant spellings' and Article 67.6 states that if a type species is cited in the form of an incorrect spelling, 'it is deemed to have been cited in its correct original spelling' as does Article 69.2.1. So Latreille made a valid designation of *C. plebeja* Scopoli as the type species of *Tibicen* following Articles 67 and 68. Berthold can then be thought of as a First Reviser fixing *C. plebeja* Scopoli under Article 24.2.1 even though this appears unnecessary under 24.2.5, where it can be 'shown subsequently that the precedence of names, spellings, or acts can be objectively determined, the action of the First Reviser is nullified.' Since *C. plebeja* Scopoli was 'The Cicada' of the time as argued by Boulard & Puissant (2013), *Cicada* was the only valid genus for cicada species at the time, the variant spelling and lower-case formatting, which is based on a consistent manner of presentation within Latreille (1825), do not negate *C. plebeja* Scopoli as the originally included nominal species for the genus. It is clear that *C. plebeja* was not being used by Latreille as the

most familiar example of all cicadas as proposed by Boulard & Puissant (2013), but rather he is using it as a typical species for the new genus *Tibicen*. The formatting and placement of the name specifically designate it as something other than an example of all cicadas. I see, and the precedence has been set in accepting these names as available, that *C. plebeja* is being used as the example of *Tibicen* based on the presentation of other species and genera in Latreille, 1825.

The positioning of the species name after *Tibicen* (which is the first reference to the genus in the literature) is an unambiguous indication of *C. plebeja* as an example of *Tibicen* alone based on the presentation of species within Latreille's (1825) text. In the other lists of multiple genera, there are no example species given for a group of

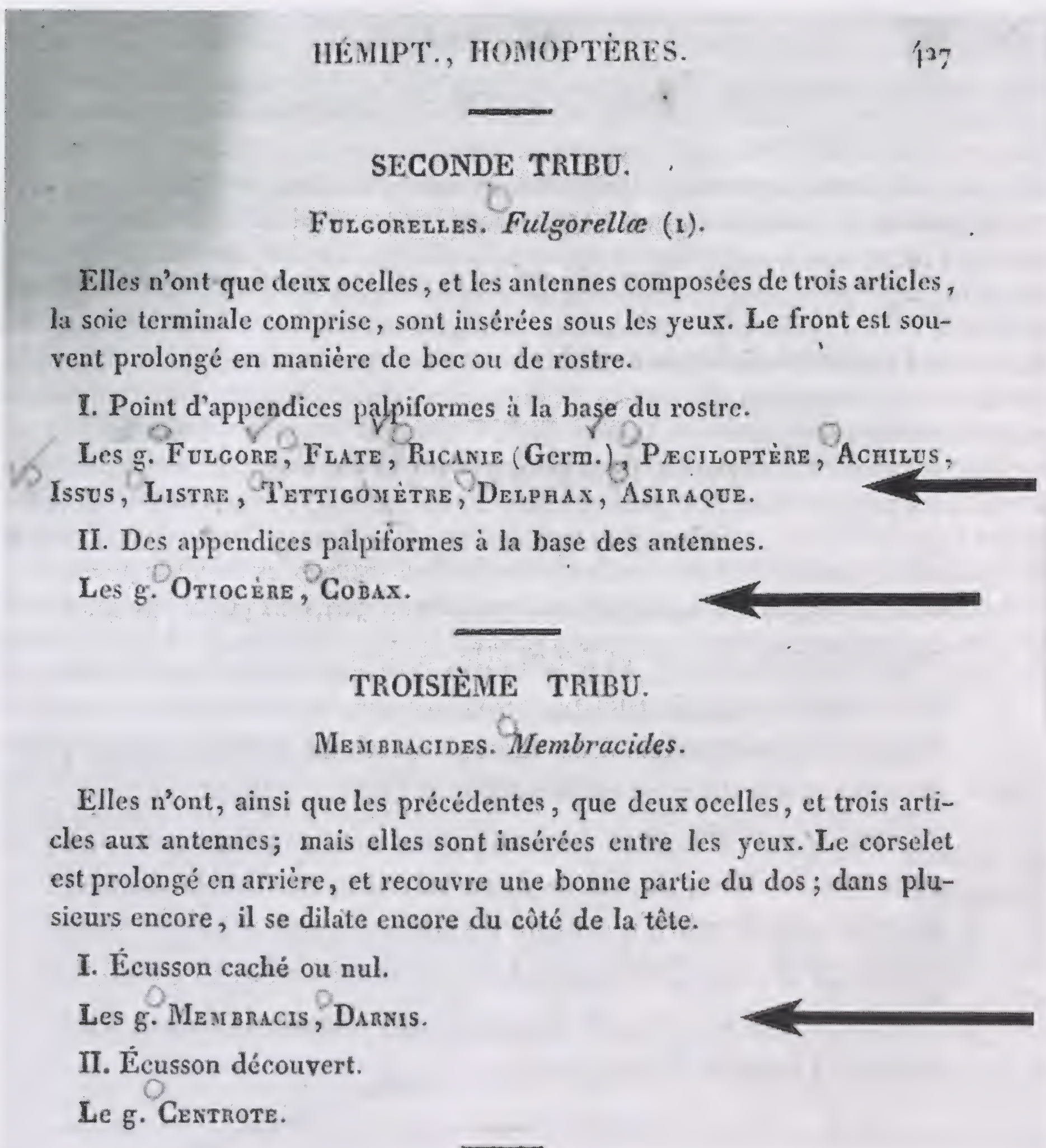


Fig. 3. Section of Latreille (1825, p. 427) illustrating the lack of exemplar species for genera that were already accepted at the time of publication. This contrasts with *Tibicen* on p. 426 showing that *C. plebeja* was being used as an example for the new genus *Tibicen* and not as an example of all cicadas.

genera. Fig. 3 is an image from the next page in Latreille (1825, p. 427) where no examples were provided for the genera listed whether there was a single genus or multiple genera listed.

This again shows that *C. plebeja* was not being used as an example of all cicadas as Boulard & Puissant (2013) contend. Rather, and very importantly here, species included within individual genera were always listed by Latreille after the genus in which they are included, once again supporting the contention that *C. plebeja* was included in the genus *Tibicen*. A list of species is found without a genus being identified unless the species is being moved to the new genus by Latreille as illustrated in Fig. 4.

When there is something unique about an individual genus within a list of genera, the unique information is placed in parentheses after the genus as seen in Fig. 5.

It has been presented by Boulard & Puissant (2013) that at the time of Latreille the large Scopolian cicada was ‘The Cicada’ so the species in question is unambiguously *C. plebeja* Scopoli. Latreille (1810) referenced *Tettigonia plebeia* Fabricius which in reality is *Cicada plebeja* Scopoli (even with the variant spelling) (Boulard & Puissant, 2013; Sanborn, 2013) providing additional evidence that the species in question is unambiguously *C. plebeja* Scopoli, 1763. Therefore, even without an authority in Latreille (1825), who often failed to list authorities with species, the meaning is clear based on Latreille’s previous publications. There were or are also no other species that had a similar spelling that the species could represent. This means that Latreille made a valid designation of *C. plebeja* Scopoli as the type species of *Tibicen* following Articles 67 and 68 and under Article 12 the name *Tibicen* becomes available due to this valid species designation as its type. Since *C. plebeja* Scopoli was ‘The Cicada’ of the time, the variant spelling and formatting choice do not negate *C. plebeja* Scopoli as the originally included nominal species for the genus. The presentation of *C. plebeja* by Latreille identifies it as a typical species for the genus *Tibicen* based on the presentation of species in other genera in the text.

The absence of a cited authority has not prevented other type species designations by Latreille (1825) or Latinized genera in Berthold (1827) from being accepted. Using the moth genera illustrated above (Fig. 2), *Tortrix dentana* Hübner, 1799 is the type

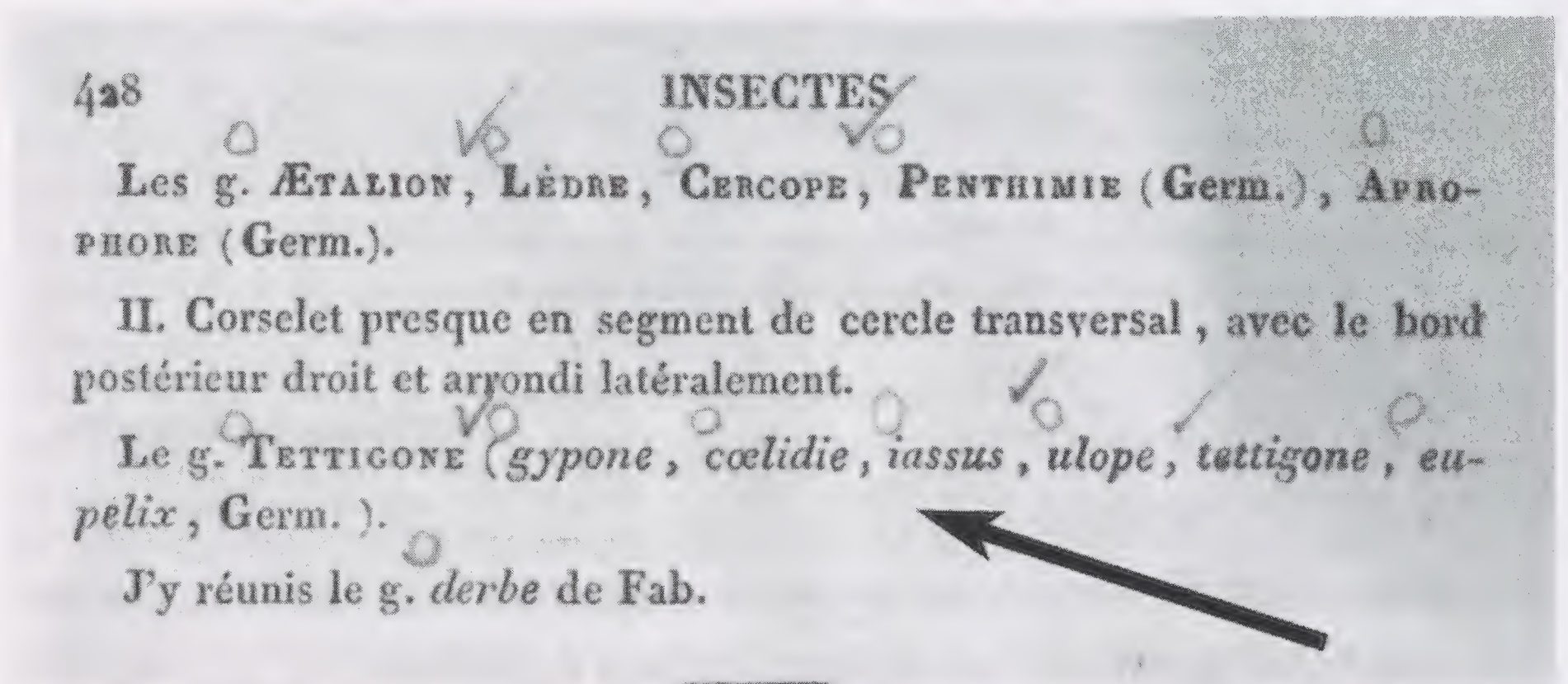


Fig. 4. Section of Latreille (1825, p. 426) illustrating that specific examples of genera are listed in parentheses after the first generic name as *C. plebeja* was done with *Tibicen*.

430

INSECTES

fixent pour la plupart vers l'époque de la ponte, et prennent alors la figure d'une galle qui recouvre et garantit les œufs. Les antennes sont composées tantôt de huit à neuf articles dans les uns, de onze dans les autres, tantôt de vingt-deux à vingt-quatre.

Les g. DORTHÉSIE, COCHENILLE, MONOPHLÈBE (antennes moniliformes et d'environ vingt-deux articles).



Fig. 5. Section of Latreille (1825, p. 430) illustrating the use of parentheses after a genus to denote something specific about that genus.

species of *Xylopoda* Berthold, 1827 (because he Latinized the vernacular name in Latreille) (Heller & Duckworth, 1981) even though the authority is not listed in Latreille (1825) nor Berthold (1827). The assignment of *Pyralis soldana* to *Procerata* Berthold, 1827 (again because he Latinized the name) is also considered valid even though 'Soldana' is a misspelling of *P. saldonana* Fabricius, 1787 (Heller & Duckworth, 1981). There is precedence to accept names that have been assigned to the genera first listed in Latreille (or Berthold if he Latinized the common vernacular) even if they may have been misspelled by authors other than the original authority. This is the case we have with *plebeia* in Latreille (1825) so under Articles 67.6 and 69.2.1 it becomes *plebeja* and we have the valid designation of a type species for the genus.

The only difference I can see between *Tibicen* Latreille (1825) and Berthold (1827) is the use of the lower-case 'c' and variant spelling *plebeia* by Latreille and the complete name *Cicada* and correct spelling *plebeja* by Berthold in the identification of the example of *Tibicen*. The presentation above clearly shows that Latreille abbreviated genera within a list once the genus was introduced and that *C. plebeja* was being used as the example of a new genus. A consistent formatting choice should not be the reason to go against the Code and negate the valid designation of a type species. However, if one is to negate the use of *Tibicen* Latreille (1825) based on the formatting or to consider that 'c. *plebeia*' is insignificant to designate *Cicada plebeja* as the type species based on the variant spelling, then Berthold (1827) becomes the authority for *Tibicen* because a valid designation of a type species was made with the complete, correctly spelled species name. There are other examples where Berthold has become the authority for names originating in Latreille (1825) based on the corrections or changes made by Berthold (e.g. *Nematopus* Berthold, 1827, p. 417 is an example from near *Cicada* along with the example of *Xylopoda* above). In either case, *Tibicen* is an available taxon.

Some have considered Latreille (1825) to have used only vernacular names and therefore the names would be unavailable. However, *Tibicen* is a Latin word (as well as a word in French and English since they are derived from Latin) and appears to fulfill Articles 1 and 26. The name *Tibicen* is associated with an extant taxon (*C.*

plebeja) using the binomial system in Latreille (1825) as outlined above. Article 26 also appears to support the use of *Tibicen* as a Latin word because it was presented with the binomen *C. plebeja*. This clearly shows *Tibicen* is being used as a scientific name and is not necessarily a vernacular term. Latreille (1825) is currently accepted as the source for multiple genera. The only mechanism that would not permit Latreille (1825) from being the authority for *Tibicen* is to suppress Latreille (1825) and all the names currently used from it. If this were to be done, then Berthold (1827) would become the authority for *Tibicen* as all the arguments to retain *Tibicen* from Latreille (1825) would also hold for Berthold (1827).

The question of Latreille's (1810) use of *Cicada plebeja* as the type for the genus *Cicada* and thus its eligibility for the type species of *Tibicen* has also been raised (Boulard & Puissant, 2013). The type species of *Cicada* was made by subsequent designation by Latreille (1802) where he gives a description of *Cicada* and lists *C. orni* Linnaeus, 1758 as the only example so *C. orni* becomes the type species by subsequent designation and monotypy of the First Reviser under Articles 69.1, 69.3 and 67.2 (further confusion about this designation is possible due to the use of Article 12 rather than Article 13 and the need for either 'indication' or 'designation' of a type species in the different Articles as outlined by Marshall & Hill, BZN 71, this issue, and I will make additional comments specific to *Cicada* below). Latreille's (1810) subsequent designation of *C. plebeja* as the type of *Cicada* is not a valid designation of a type species for the genus under Article 70.2 since a type species had already been designated by Latreille (1802) in a valid manner under the Code. In addition, *C. plebeja* is not eligible to be fixed as the type of *Cicada* based on Article 69.2.2 since it is not considered a synonym of *C. orni* nor was it included as an original species of the genus (Article 67.2). This makes *C. plebeja* an available species for a new genus in 1825.

Also interesting in the application of the taxon *Tibicen* is the description in both Latreille (1825) and Berthold (1827) where the sound apparatus was described as being in the abdomen and anatomically closed with a lid or cover, which applies to *C. plebeja*. Latreille (1829) then contradicted himself with the elimination of the timbal cover and inclusion of *Cicada haematodes* Scopoli, 1763 (originally misspelled by Latreille showing that the misspelling of *plebeja* is a distinct possibility) within the genus. If we accept the contention that *C. haematodes* became the type species of *Tibicen*, then *Tibicina* is a junior synonym of *Tibicen* and all associated changes would be necessary, e.g. changing all species of *Tibicina* to *Tibicen*, TIBICININAE to TIBICENINAE (and then we would have two concepts of TIBICENINAE), etc. Not following the Code would lead to more confusion and conflicts with the nomenclature.

The following Articles all support the use and availability of *Tibicen* Latreille, 1825 (or Berthold, 1827 if Latreille, 1825 is suppressed) with *Cicada plebeja* Scopoli, 1763 as the type species:

Articles 11 (11.1, 11.2, 11.3, 11.4, 11.5 and 11.8 are all satisfied while Articles 11.6, 11.7, 11.9 and 11.10 are not applicable), 12.1, and 12.2 (using applicable 12.2.5) as outlined above.

Article 58.3 'the use of *i* or *j* for the same Latin letter is deemed to be identical variant spellings' so *plebeia* becomes *plebeja*.

Article 67.2.1 states that ‘originally included nominal species comprise only those included in the newly established nominal genus or subgenus, having been cited in the original publication by an available name.’

Article 67.2.2 (if one supports the argument that Latreille (1825) did not designate a species based on the variant spelling and lower-case ‘c’) states that for a genus published before 1931 without included nominal species, the nominal species that were first subsequently and expressly included in it are deemed to be the only originally included nominal species. Berthold (1827) included *C. plebeja* in proper format and it would again become the type species of *Tibicen* as it is the only species expressly included in the genus.

Article 67.3 states that ‘only acts or other published statements of the author made when a nominal genus or subspecies is established are relevant in deciding’ 67.3.2 ‘which are the originally included nominal species in the meaning of 67.2’ (species eligible for type fixation). This means that although Latreille (1829) would eventually designate another type species, this second designation of a different species in 1829 is not valid for *Tibicen*. Even if we assume Berthold was the First Reviser, a valid type species designation had already been made. This makes *Cicada plebeja* Scopoli the type species of *Tibicen* under Articles 68.2 (original designation) and 68.3 (type species for the genus by monotypy as the only species listed).

Article 67.4 states that type species is fixed in the original publication (Article 68) and *C. plebeja* was specifically stated as the example of *Tibicen* in Latreille (1825) and Berthold (1827) fulfilling 67.4.1.

Article 67.6 states that even if fixation was made using an incorrect spelling, the correct spelling is deemed to have been cited in its correct original spelling so *plebeja* replaces *plebeia*.

Articles 68.2 (type species by original designation) and 68.3 (type species by monotypy) as outlined above.

Articles 69.1, 69.2.1, 69.2.2 and 69.3 in the designation of *C. plebeja* by Berthold (1827) as a type not fixed in the original publication if one considers the presentation of *C. plebeja* by Latreille (1825) was not suitable to validate *Tibicen*. In this case, Article 24.2.1 also applies with Berthold (1827) as the First Reviser.

Article 70.1 states that an author has identified the species correctly when he fixes such a species as the type species of a new or previously established nominal genus or subgenus (Article 70.1.2). Again since *C. plebeja* was identified as the example of *Tibicen*, it becomes the type species. The description in Latreille (1825) and Berthold (1827) also supports *C. plebeja* as the type since they both have the sound organ enclosed within the abdomen as a character of the cicadas (which contradicts the character of a missing timbal cover in Latreille (1829)).

Article 70.2 making *C. plebeja* available for type designation since *C. orni* was already designated as the type of *Cicada*.

Because of the confusion that has occurred historically, it is imperative that we go to the original publications and the introduction of the names using the Code as our guide to determine what should happen with the taxa. It is clear from the above discussion that the Code favours conservation of *Tibicen* Latreille, 1825 with type species *Cicada plebeja* Scopoli, 1763. If you argue that the authority of *Tibicen* should be Berthold, 1827, then all the articles still support the retention of *Tibicen* as they still apply with the added benefit that *Cicada plebeja* is spelled out completely and

correctly. The only difference between *Tibicen* Latreille (1825) and Berthold (1827) is the use of the lower-case 'c' in the identification of the example of *Tibicen* which Latreille did in other lists of genera once the genus was introduced in a fully spelled out manner. It is clear that *C. plebeja* was being assigned to the new genus *Tibicen* by Latreille and the Code supports its valid designation as the type species of the genus. If we do not accept this designation, then all the currently recognized Latreille genera from the 1825 text must also be suppressed as invalid.

It is true that some authors have made the switch from *Tibicen* to *Lyristes*. However, these authors are in the minority in numbers as well as publications. Prevailing usage of *Tibicen* suggests that the concept of *Tibicen* is consistent and the evidence to support retention of *Tibicen* in its current form could be easily compiled to apply to retain the name and concept if it were determined to be invalid by the Commission. In the most recent catalogue of the CICADOIDEA (Sanborn, 2013), there are 250 references (66.3%) that use *Tibicen* and 127 references (33.7%) using *Lyristes* from 1984–2010 (the year of publication for the last petition to the end of the catalogue coverage). A total of 310 different authors cite *Tibicen* and 114 authors cite *Lyristes*. The use of *Lyristes* in Asia, Europe and Turkey began for most authors after the last application to the ICZN to suppress *Tibicen* in 1984 as noted by Boulard & Puissant (2013). However, there are still more authors in these regions that have used *Tibicen* since the 1984 application with at least 101 authors from Europe, Asia and Turkey using *Tibicen* and only 90 using *Lyristes*. *Tibicen* continues to be the dominantly applied and used taxon. The stability in the concept of *Tibicen* over the last century, as seen in the catalogues by Metcalf (1963) and Duffels & van der Laan (1985), and the number of Articles of the Code that suggest *Tibicen* is a valid taxon strongly supports the conservation and continued use of *Tibicen* as the valid taxon with priority (Article 23) over *Lyristes* Horváth. The only real question appears not to be whether *Tibicen* is valid with *C. plebeja* as the type species but whether Latreille, 1825 or Berthold, 1827 should be the authority. The evidence provided here supports Latreille, 1825 as the authority for the validly designated genus *Tibicen*.

The Code supports the retention of the name *Tibicen* with *Cicada plebeja* Scopoli as the type species. *Cicada plebeja* Scopoli has been listed as the type species of *Tibicen* by numerous authors (see list in Metcalf, 1963). If we accept the arguments that *C. haematodes* Scopoli is the type species of the genus, then *Tibicina* becomes *Tibicen* and all associated higher taxonomic changes must also occur. Prevailing usage of *Tibicen* suggests that the concept of *Tibicen* is consistent and the evidence to support retention of *Tibicen* in its current form could be easily compiled to apply to retain the name and concept if it were determined to be invalid. The stability in the concept of *Tibicen* over the last 100 years and the number of Articles of the Code that suggest *Tibicen* is a valid taxon strongly supports the conservation of and continued use of *Tibicen* as a valid taxon with priority (Article 23) over *Lyristes* Horváth.

The valid designation of a type species for *Cicada* is another issue that can be interpreted in different manners. I (along with Boulard & Puissant and Marshall & Hill) interpret Latreille (1802) as designating the type species of *Cicada* since he gave a description of the genus and lists *C. orni* Linnaeus, 1758 as the only example (one of the species originally described by Linnaeus with the formation of the genus) so *C. orni* becomes the type species by subsequent designation and monotypy of the First Reviser under Articles 69.1, 69.3 and 67.2. Confusion about the terms 'indication'

and 'designation' for species identified as types prior to 1930 or after 1931 leads to potential confusion about the validity of the indication by Latreille (1802). Marshall & Hill (BZN 71, this issue) discuss the implications of rejecting the designation by Latreille (1802) as *Cicada tibicen* Linnaeus, 1758 was the next species to be designated a type of *Cicada* by Van Duzee (1912). Since *Cicada tibicen* is now *Tibicen tibicen* (Sanborn, 2008), *Tibicen* would become a junior synonym of *Cicada* and the concept of *Cicada* and its derivatives would be significantly changed with the current species of *Cicada* needing a new genus. The next designation was not until *C. orni* by Van Duzee (1916). I counted five genera in *The Official Lists and Indexes of Names in Zoology* update December, 2012 that use Latreille (1802) as the source of type species. However, all are based on Opinions rendered by the Commission for the respective taxa. It would appear a use of plenary powers would be necessary to accept the designation of *C. orni* by Latreille (1802) and maintain the stability of the nomenclature and concepts of the higher taxonomy.

The type species of *Tibicina* can also be shown to have been made unambiguously. Since there was already a valid designation of *C. plebeja* as the type species of *Tibicen* by both Latreille (1825) and Berthold (1827), the designation of *C. haematodes* as the type species for *Tibicen* by Latreille (1829) is invalid based on Article 70.2. Similarly, since *C. haematodes* is not a synonym of *C. plebeja*, it is not eligible to be fixed as the type of *Tibicen* based on Article 69.2.2. This makes *C. haematodes* available for type species designation for a new genus. Therefore, *C. haematodes* becomes fixed as the type species of *Tibicina* by Kolenati (1857) by original designation (Article 68.2) with the official erection of the genus. So even though Distant (1905) based the TIBICINIDAE on *Tibicina* Amyot, 1847 (unavailable under Opinion 2165), *C. haematodes* remains the type species of *Tibicina* Kolenati, 1857 and the type species of the TIBICINIDAE remains the same.

Moulds (2005) performed a comprehensive cladistic analysis on the higher taxonomy of the CICADOIDEA. Many of the problem taxa of the historical past were shifted to one of the now three recognized subfamilies within the CICADIDAE Latreille, 1802: CICADINAE Latreille, 1802, CICADETTINAE Buckton, 1889, and TIBICININAE Distant, 1905 (a synonymic species list from 1758–2012 is in Sanborn, 2013). The TIBICENIDAE Van Duzee, 1916 and TIBICENINAE are now junior synonyms of the CICADIDAE and CICADINAE respectively. The species of *Tibicen* should be classified in the remaining TIBICENINI which has priority over the CRYPTOTYMPANINI Handlirsch, 1925, LYRISTINI Gomez-Menor Ortega, 1957 and the PLATYPLEURINI Schmidt, 1918 in which the *Tibicen* species have been classified at various times (see discussion in Moulds (2005)). The TIBICININAE has a new concept in terms of the species composition as many of the historically included taxa were shifted to the CICADETTINAE in 2005. Now that the concepts of the genera *Tibicen* and *Tibicina* have remained stable for a century and clearly defined type species can be shown, perhaps it is time to apply Article 23 and use TIBICENINI once again for the group containing the genus *Tibicen*. It has priority over all of the alternative taxa, and the last of the questionable taxa has been removed to a correct phylogenetic position (Sanborn, 2014), and the group is monophyletic (Moulds, 2005). Van Duzee (1916) formed the higher taxa based on *Tibicen* designating *Cicada plebeja* as what he called a haplotype for the taxa. Since he made a designation using what has been shown here to be the valid type species of *Tibicen*, a return to the use of TIBICENINI should occur. Using the

plenary power to suppress *Tibicen* would cause greater confusion since now only the TIBICENINI would be eliminated while simultaneously negating prevailing usage. The concepts of the genera have remained stable for a century, and the reassignment of many problem genera to new higher taxa, along with acknowledgement that *Tibicen* Latreille, 1825 is a valid genus, solves the problems of the higher taxonomy that were a major portion of the last petition. Application of the Principle of Priority will stabilize the problem and retain prevailing usage.

This issue has officially gone before the Commission at least twice with no resolution. There are some 25 separate Articles of the Code that can be applied to support the retention of *Tibicen* as outlined here. The evidence I have illustrated above supports the contention that *Cicada plebeja* is a validly designated type species for a new generic name published before 1931. This valid designation along with the described valid designations of type species for *Cicada* and *Tibicina* eliminates the confusion as to the characteristics of each genus and any derived taxa. The Code states that we must only use the information that is available in a single work to determine the validity of individual taxa (Article 67.3.2), not the considerably confused history that was to follow. By starting at the beginning and clarifying the type species for the genera in question, the confusion can be eliminated and priority can be followed.

The commission is respectfully requested to verify the following and fix the type species based on the evidence provided above:

- (1) *Tibicen* Latreille, 1825 (or Berthold, 1827 if Latreille 1825 is suppressed), type species *C. plebeja* Scopoli, 1763 by original designation and monotypy of an available taxon. Type genus of TIBICENINI Van Duzee, 1916. *Tibicen* has priority over *Lyristes* Horváth, 1926 which is a junior synonym.
- (2) *Cicada* Linnaeus, 1758, type species *C. orni* Linnaeus, 1758 by subsequent designation by Latreille, 1802. Type genus of CICADINI, CICADINAE, CICADIDAE, and CICADOIDEA Latreille, 1802.
- (3) *Tibicina* Kolenati, 1857, type species *C. haematodes* Scopoli, 1763 through original designation. Type genus of TIBICININI and TIBICININAE Distant, 1905.

Fixing the type species for these genera through the publications as outlined above would permit the use of specific powers and would not require the suppression of any currently available name nor the suspension of any portion of the Code. The plenary power can be used to permit the designation of *C. orni* as the type species of *Cicada* by Latreille (1802) using the indication permitted under Article 12 rather than the more stringent definitions of a designation following Article 67. By using the specific and plenary powers to fix the generic names, type species and publications, the names can be added to the List of Available Names in Zoology eliminating all previous confusion with respect to how the taxa are applied. The changes that have occurred to the higher taxonomy have meant that the confusion in higher taxa were eliminated as synonymies and reorganizations occurred. As a result, suppression and plenary power implementation are no longer necessary.

(3) Michel Boulard

Muséum National d'Histoire Naturelle, Paris, France
(e-mail: mbkcicada01@yahoo.fr)

Stéphane Puissant

Muséum National d'Histoire naturelle Département Systématique et Evolution UMR 7205 CNRS 47 bis, rue du Faubourg Raines F-21000 Dijon, France (current address) (e-mail: puissant.stephane@neuf.fr)

Summary. Since the early twentieth century, the current highest nomenclature of the CICADIDAE includes two subfamilies whose radicals differ only in one vowel: TIBICENINAE (from *Tibicen* Latreille, 1825) and TIBICININAE (from *Tibicina* Amyot, 1847), thereby causing many difficulties. A third name, *Lyristes* Horváth, 1926 was created to replace *Tibicen* Latreille, 1825, without being universally adopted. We have reviewed the history of the problem and proposed the revision of the specific and generic types in the CICADIDAE:

Cicada Linnaeus, 1758: type species *C. orni* Linnaeus, 1758 by subsequent designation Latreille, 1802, type genus of the family CICADIDAE Latreille, 1802, not including *Tibicen* and its derivatives.

Tibicen Latreille, 1825 (including the latinized version *Tibicen* Berthold, 1827): this name and its derivatives should be taken out of circulation as unavailable. Species erroneously assigned to *Tibicen* in various catalogues have to be re-assigned to other genera. *Tibicina* Kolenati, 1857: type species *Cicada haematodes* Scopoli, 1763, the type genus of TIBICININAE Distant, 1905.

Lyristes Horváth, 1926: type species *Cicada plebeja* Scopoli, 1763. This genus is in the subtribe CRYPTOTYMPANINA Handlirsh, 1925 of the subfamily CICADINAE Latreille, 1802.

The family CICADIDAE Latreille, 1802, true cicadas according to Latreille (1802), contains two major subfamilies TIBICENINAE (Van Duzee, 1917) and TIBICININAE (Distant, 1905) whose current names differ only by one vowel, a source of many errors. This problem originated with the type genera *Tibicen* Latreille, 1825 and *Tibicina* Kolenati, 1857, introduced during the first half of the 19th century, followed by numerous varying interpretations of the nomenclature in this group. Presently, it is urgent to revise the existing catalogues (Metcalf, 1963; Duffels & van der Laan, 1985, and even Sanborn, 2014), using the correct nomenclature and typifications. We propose here to deal with the inherent nomenclatural problem of *Tibicen*, *Tibicina* and *Lyristes*. After some exchange of correspondence between cicadologists, we here review the history of this issue:

In 1740, Réaumur examined, described and drew four species of the French cicadofauna which relate to the present article: 'la cigale de la grande espèce' [*Lyristes plebejus* (Scopoli, 1763)] and 'la cigale de moyenne grandeur' [*Cicada orni* Linnaeus, 1758].

In 1758, Linnaeus dealt, under the patronymic name *Cicada*, with the Noctilucae, Foliaceae, Cruciatae, Manniferae, Spumantes and Deflexae insects, today called Fulgoromorpha and Cicadomorpha.

In 1762, Geoffroy wrote the genus name in Latin: *Cicada*, but reserved it for those species that possessed ‘trois petits yeux lisses’ [three little smooth eyes], the ocelli. Two species of cigale were recorded from Provence (Geoffroy, 1762, p. 429): *Lyristes plebejus* Scopoli, 1763 and *Cicada orni* Linnaeus, 1758.

In 1791, Olivier revised the diagnosis of the genus ‘*Cicada* Lin. Geoff.’, applying it exclusively to cicadas per se [CICADOIDEA].

In 1802, Latreille, dealing with the Family ‘CICADAIRES *cicadariae*’ and ‘du genre CICADA; *cicadae verae*’ concluded as follows: ‘Exemple. *Cicada orni*. Lin.’ (Latreille, 1802, p. 257) ‘Exemple’[example] is here used in the Lamarckian meaning, i.e. the origin of the type concept. Nevertheless, the Commission explicitly and surprisingly invalidated any notion of Lamarck’s type, saying ‘Rigidly construed Lamarck’s (1801) [. . .] is not to be accepted as designation of type species’ (Opinion 79, ICZN, 1924). Typification of *Cicada orni* Linnaeus, 1758, must therefore be definitely attributed to Latreille, 1802 for the following additional reasons:

(a) In French, the word ‘Exemple’ meaning ‘Model to be followed’ does not have to be preceded by the definite article.

(b) Across the French taxonomic papers, at the dawn of the 17th century and later, the word ‘Example’ includes the modern notion of ‘type’.

In 1804, Latreille listed eight European cicadas, but without giving examples. *C. orni* is listed in second position after ‘*Cicada haematodes* Scop. Oliv.’ (1804, p. 305 et seq.)

By the end of 1806, von Froriep, when translating a seminal text of Dumeril published at the beginning of 1806, used as example the notion of ‘type’ for ‘*Cic. orni*’ (Froriep, 1806, p. 267). It is well in the current thinking of the time, however von Froriep wrote in his translation: ‘Z[zum] B[beispiel]’ i.e. ‘for example’ in German language. This act is not rigidly construed and is therefore not a valid designation under the Code (Article 67.5.1 of the Code).

In 1810, Latreille distinguished firstly for ‘Les cicadaïres chanteuses’, the only genus, ‘G. 342. CICADA. *Cicada*.’ without author or species names (1810, p. 262). However, in his ‘Table des genres avec l’indication de l’espèce qui leur sert de Type’ (p. 434) is inscribed: ‘Cigale. *Tettigonia plebeia*, Fab.’ Which in reality means *Cicada plebeja* Scopoli.

In 1825, Latreille concluded the presentation of the Tribe of Singers by: ‘The g. CICADA, TIBICEN (*c. plebeia*)’ a quotation often called cryptic, but which must be seen in the context of its time. It becomes clear that the words ‘CIGALE’ and ‘TIBICEN’ clearly have the same vernacular value under the writings of the author. The two terms are both denominated in capital letters. The second term is a common name from the Roman vocabulary (military and religious), which refers to a trumpeter. Latreille was not consistent in his choice of a definition but he gave an unambiguous definition four years later. ‘TIBICEN’ is therefore not an available name. On the other hand, ‘(*c. plebeia*)’ is referred to here, simply and without special precautions, as the well-known ‘Cigale’: its name is placed in parentheses, begins with a small ‘c’, is spelled with an ‘i’ instead of the original ‘j’ and, finally, without the author’s name. No doubt it here represents the largest cicada species studied by Reaumur (see above), which was named *Cicada plebeja* by Scopoli in 1763.

In 1827, Berthold translated Latreille (1825) latinizing the names of genera and species, but writing ‘*Cicada, Tibicen (Cicada plebeia [sic])*’ Berthold, 1827, p. 424),

showing the following facts misunderstood or ignored (except by Boulard, 1988, 1998). The plebeian cicada belongs to the first genus mentioned and Berthold provided irrefutable proof. In his translation, he wrote in full both the genus name and that of the well-known species directly associated, *Cicada plebeja* (cited as *plebeia*). Thus he understood clearly that Latreille was using vernacular terms (see Boulard, 1988b, p. 24 and Boulard, 1998, p. 94). Berthold confirmed the designation of the representative species mentioned, which he latinized himself as type *plebeja* (cited as *plebeia*). *Tibicen* Berthold, 1827 remains a nomen nudum because there is no description accompanying *Tibicen* and no available specific name in combination with it or clearly included under it (Articles 12.1, 12.2.5 and 67.5.3 of the Code).

In 1829, Latreille (p. 214), as the reviewer of his own writing, placed *C. orni* at the head of the genus ‘Cigale. *Cicada* [Latr.]’ and clarified what kind of cicadas made up his *Tibicen* genus: ‘Celles où le premier segment abdominal offre en dessus une entaille laissant à découvert la timbale.’ [‘Those in which the first abdominal segment has at its top a slit leaving the timbal uncovered’]. This is obviously not the case with *plebeja* Scopoli, 1763; its timbals are completely hidden. In the same paper, Latreille (1829, p. 215) listed ‘*C. haematode* (sic) of Olivier, the *T.[ettigonia] picta, hyalina, algira* Fab.’. These originally included nominal species are acceptable for fixing the type species of the genus *Tibicen* Latreille, 1829, even the first referred to with the name misspelled (Articles 67.2.1, 67.6 of the Code). Note here that *Cicada haematodes* Olivier, 1791 (p. 753) is the exact synonym of *Cicada haematodes* Scopoli, 1763 (p. 118, No. 347). However, no species having been particularly distinguished, *Tibicen* Latreille, 1829 is a nomen dubium.

In 1840, Westwood, with a hitherto unpublished criterion, gave another definition of *Tibicen* in these terms: ‘The species with 2 joined tarsi [bimer tarsi] form *Tibicen* Latreille’s genus, *C. plebeia, tympanum, mannifera, & c*’ (Westwood, 1840, p. 422, footnote).

In 1843, Amyot & Serville kept:

(a) the bimer criterion for their new *Fidicina* genus with type species *Tettigonia mannifera* Prod. (p. 472) [= *C. plebeja* Linnaeus, 1767, non Scopoli, 1763 (see Boulard, 1988b, p. 60) and Boulard & Martinelli, 1996, p. 23].

(b) the genus proposed by Latreille for *C. haematodes* Scopoli, 1763, in these terms: ‘Le genre *Tibicen* Latr. (*Règn. anim. 1829. 215a*), dont le type est la *Tettigonia sanguinea* Fabr. . . . Stoll. pl. II. fig. 11.— *Cicada hematodes* Oliv. [. . .] qui a les cavités sonores entièrement à découvert’ [= ‘The genus *Tibicen* Latr. (*Règn. anim. 1829. 215a*) whose type is the *Tettigonia sanguinea* Fabr. . . . Stoll. pl. II. fig. 11.— *Cicada hematodes* Oliv. [. . .] which has sound cavities completely uncovered’] (p. 482). This was the first way of giving *Tibicen* an unmistakable designation of type species, the latter accepted by Stål in 1861. This choice, made by connoisseur such as Amyot, Serville and Stål, surprisingly fell into oblivion until 1907 (see below).

In 1845/1847, Amyot wanted to build a mononymic method based on genus. This method was unwelcome and abandoned*, apart from a few new features, including *Tibicina*, taken as a subgenus by Kolenati (1857, p. 414). However, Kolenati (1857) did not fix the type species. He listed two names ‘hematodes’ and ‘steveni’, although the latter was only mentioned as a variety of the former. Distant (1905c, p. 22) was the first author to use the term ‘type’ in connection with ‘*Tibicina*’.

(*) Abandoned. In 1963, the ICZN (Opinion 686) rejected most denominations that Amyot proposed from 1845 to 1847 (Amyot, 1847; vols. 3–5), but not those in Volume 5, pp. 143–238, which concern cicadas and in particular the taxon *Tibicina*, invented therein (see Boulard, 1988). Nevertheless, the name was therefore available from Amyot (1847) under Article 78 according to Melville & Sims, (1984, p. 165) (see Boulard, 1991, p. 25; Puissant, 2005, p. 302). However in Opinion 2165 (ICZN, 2006), the Commission erased its oversight. Since that date, the term must be definitively assigned to Kolenati (1857).

In 1872, 1875 and 1876, Fieber eliminated *Tibicen* in his revision of the European cicadas but raised *Tibicina* Kolenati, 1857 to generic rank (1872, p. 1; 1875, p. 338; 1876, p. 30.).

In 1889, Distant used *Tibicen* Latreille, 1825 (sic) and the false radical *Tibicen*–, to create the subfamily TIBICENINAE containing the cicadas with ‘tympanic coverings practically absent’ (pp. 3, 103, 127). However, the author did not mention the type.

In 1896, Melichar included the nomenclatural acts proposed by Fieber (1872/1876) in his important and essential book. He eliminated *Tibicen* and used *Tibicina*.

In 1900, Kirkaldy wrote the first rule for the determination of the type species of a genus ‘by a reference to the species and its author’. This rule came to support Articles 67c and 70b in early versions of the Code.

In 1905 and 1906, Distant took no account of *Tibicen* in his monumental work, the basis of the classification of cicadas globally. Distant (1905c) retained the genus *Tibicina* Kolenati, 1857. He is the first author to designate one of the originally included nominal species: ‘*haematodes* Scop.’ as the type species of *Tibicina* (Article 69.1.1 of the Code).

It is somewhat surprising that three of our great forebears: Fieber, Melichar and Distant, excluded *Tibicen* from their fundamental works, and that a fourth taxonomist, also renowned, Oshanin, joined them a few years later, placing *Tibicen* in the rank of *nomina nuda* (1912, p. 95). Thirteen years later a fifth well known taxonomist, Handlirsch did the same (see below). At the same time, these authors took account of *Tibicina* Kolenati (1857) and used the radical *Tibicen* – in the development of a part of the classification of the CICADIDAE then comprising the ‘TIBICENINAE Distant, 1905’ for many cicadas without timbal covers.

In 1907, Kirkaldy, in an important annotation made to the recent catalogue of Distant (1906), said ‘p. 123. delete Amyot’s ref. to *Tibicina* and make the latter a syn. of *Tibicen* Latreille, 1829’. Therefore Kirkaldy certified ‘*Cicada haematodes* Scopoli, 1763’ as the type species of the genus *Tibicen* Latreille, 1829, the first species mentioned by Latreille under the diagnosis of his genus. This decision had already been taken up by Amyot & Serville (1843). Therefore, before the Code even existed, *C. haematodes* Scopoli was the type species of *Tibicen* Latreille, 1829 (Amyot & Serville, 1843).

In 1912, Horváth applied *C. haematodes* Scopoli as type species for *Tibicen* Latreille, 1829; he was consistent with Amyot & Serville, 1843.

In 1914, Van Duzee, following up the Congress of Berlin in 1901, where it was found that *Cicada plebeja* Scopoli was not on the list of cicadas known to Linnaeus in 1758, gave *Cicada orni* Linnaeus as type for the genus *Cicada* Linnaeus. Van Duzee only confirmed the validity of the ‘Example [-Type]’ applied by Latreille in 1802. Consequently, ‘*plebeja* Scopoli’ having been removed from the Linnaean genus, Van Duzee, while he didn’t accept ‘*Cicada plebeia* Berthold, 1827’, chose to place this

species as type of the genus *Tibicen* Latreille (1825) (sic), an incomprehensible action as *Tibicen*, had already *C. haematodes* Scopoli, 1763 clearly designated as its type species (see above: Amyot & Serville, 1843). Moreover, this nomenclatural act was already confirmed by Kirkaldy (1907) then Horváth (1912).

In 1915, 1916 and 1917, Van Duzee used *Tibicen* Latreille, 1825 (sic), ‘haplotype’ *C. plebeja* Scopoli, 1763 (sic), for large Nearctic cicadas with hidden timbals. This brought him during the year 1915 to produce a new calamitous nomenclature for the major divisions of the classification of CICADOIDEA (see Boulard, 1984, p. 169). His action was thus the origin of the mess in which the nomenclature and higher classification of cicadas find themselves.

In 1925, Handlirsh reworked the higher classification of cicadas and the nomenclature. We find the total eradication of *Tibicen* and its inflections, as well as the appearance of a new sub-group name (in fact, the subtribe CRYPTOTYMPANARIA). On this occasion Handlirsh stressed the need to rename the taxon ‘*Cicada* . . . *auct.* L. nec (mit *plebeja* Scop.)’ (1925, p. 1117).

In 1926, Horváth created the genus *Lyristes* with *C. plebeja* Scopoli as type under the valid name ‘*Lyristes plebejus* (Scop.) 1763’ (1926, p. 96). At the same time, the author put *Tibicina* ‘Fieber, 1875’ (sic) as a junior synonym of *Tibicen* Latreille, 1829 (Horváth, 1926, p. 97).

Unfortunately, for one reason or another, Van Duzee’s errors have been perpetuated.

In 1906, Kirkaldy, an epistemological severe critic of Distant and his recent catalogue, tried to ‘re-hash’ *Tibicen* in contempt both of established texts and his own principles. He claimed that in 1825 ‘Latreille mentioned it [*Tibicen*] giving ‘*plebeia*’ Scop. as the type’, a surprising assertion considering that for Latreille, there was never any question of *plebeja* Scopoli (with hidden timbals) belonging to his *Tibicen*, which included many other species with uncovered timbals. Surprisingly the North American successors of Kirkaldy took what he said to be correct, and since then they have suffered the consequences. First witness: Van Duzee (1914) who matched *C. plebeja* Scopoli to *Tibicen* Latreille, 1825 (sic) and the same in 1916 and 1917, stating ‘*Tibicen* Latr. 1825, haplotype *plebeja* (Scop.)’ where the use of the term haplotype (a type designated by simple reference to a publication; term excluded from the fourth version of the Code) is revealing. Second witness: Metcalf, 1963 and his catalogue unfortunately including ‘TIBICENINAE’ and ‘TIBICINIDAE’. One could cite other works, even recent (e.g. Sanborn & Heath, 2012; Stucky, 2013), in the same spirit.

Cicadologists and colleagues of many countries (China, Europe, Japan, Turkey, etc.) who, have understood the action and explanations of Horváth (1926), used and still use *Lyristes*, for example in catalogues and works of many recent authors: Haupt (1929); Gomez-Menor (1957); Dlabola (1958); Servadei (1960); Wagner & Franz (1961); Villiers (1977); Bonfils & Della Giustina (1978); Lodos (1986); Schedl (1986); Dworakowska (1988); Riou (1995); Quartau (1995); Chou, Lei, Lu & Yao (1997); Gogala (1998); Sueur (2001); Moulds (2005); Drosopoulos, Eliopoulos & Tsakalou (2006); Lee (2008); Hayashi & Saisho (2011); Gogala (2013); Herthach & Nagel (2013) and Simões & Quartau (2013).

In 1957, Gomez-Menor Ortega, after redefining the genus *Lyristes*, placed it as the type genus of the then new tribe ‘LYRISTARINI’ (p. 28).

In 1961, Wagner & Franz perfectly distinguished *Lyristes plebejus* and *Tibicen haematodes* (pp. 152, 153).

In 1963 and 1964, Orian and China, following the posthumous publication of the Catalogue of CICADOIDEA by Metcalf (1963a, b), drew attention to the difficulties in referring to the names of two subfamilies differing only by a single vowel.

In 1972, Boulard divided cicadas found in France into two families: the CICADIDAE including *Lyristes plebejus* and TIBICINIDAE supported by *Tibicina haematodes* (p. 169); this was renewed by the same author in 1976.

In 1979, Boulard described two Solomonian species of a genus hitherto unpublished, *Nggeliana*, which is between a native *Lyristes* from San Cristobal Island [*Lyristes cristobalensis* Boulard, 1990] and genus *Heteropsaltria* Jacobi, 1902. This distinction led the author to note at the bottom of page 50, '*Lyristes* Horváth 1926 = *Tibicen* Van Duzee, 1914 [non *Tibicen* Amyot and Serville, 1843, nec *Tibicen* Latreille, 1829 (nomen incertum), nec *Tibicen* Latreille, 1825 (nomen nudum)]'. At the same time, Boulard formulated a new diagnosis for the subtribe of CRYPTOTYMPANARIA Handlirsh, 1825, now CRYPTOTYMPANINA (see Boulard, 2012, 2013), in which *Lyristes* was implicitly included (Boulard, 1979, p. 58). In other words, the parity *Tibicen* Van Duzee – *Lyristes* Horváth is only hypothetical, based solely on references to publications.

In 1984, Boulard assembled the arguments for the Commission enabling the removal of *Tibicen* and its derivatives from the higher classification of the superfamily of cicadas. The Secretariat of the Commission addressed this request to 16 specialists: 8 proved favourable to the removal of *Tibicen*, while only 4 recognized as valid the nomenclature at that time assigned to Berthold, 1827 (Melville & Sims, 1984, p. 165). The Commission, however, did not act without explanation.

In 1990, Moulds implicitly demonstrated that *Lyristes* and *Tibicen* cannot be entirely synonymous. As a simple example, in his review of the Australian cicado-fauna the author counted 11 species described in *Tibicen* but which he transferred to other generic taxa, some new, *Lyristes* receiving no mention in any part of this work. Originally, there were 19 species included in *Tibicen* in Goding & Froggatt (1904): *Tibicen curvicosta* (Germar, 1834); *T. ruber* Goding & Froggatt, 1904; *T. melanopygius* (Germar, 1834); *T. interruptus* (Walker, 1850); *T. doddi* Goding & Froggatt, 1904; *T. rubricinctus* Goding & Froggatt, 1904; *T. borealis* Goding & Froggatt, 1904; *T. gilmorei* Distant, 1882; *T. kurandae* Goding & Froggatt, 1904; *T. auratus* (Walker, 1850); *T. hirsutus* Goding & Froggatt, 1904; *T. coleoptratus* (Walker, 1850); *T. occidentalis* Goding & Froggatt, 1904; *T. willsi* Distant, 1882; *T. burkei* Distant, 1882; *T. flavus* Goding & Froggatt, 1904; *T. gregoryi* Distant, 1882; *T. muelleri* Distant, 1882 and *T. infans* (Walker, 1850). All today are assigned to genera other than *Tibicen* (Moulds, 1990, 2012). These observations, in addition, indicate a 'false problem', the difficulty of reclassifying '*Tibicen*' species left too long as defined in Van Duzee's system. It also shows how the genus *Tibicen* was poorly understood and remains ill-defined.

In 1998/2001, Boulard reaffirmed the urgent need for the Commission to apply its plenary power and finally resolve the recurring problems marring the nomenclature of the family CICADIDAE. In 2003, Boulard declared '*Tibicen* Latreille, 1825' to be a 'fatal error'.

In 2005, Moulds, after an exhaustive cladistic evaluation of all CICADOIDEA, proposed a cladogram recasting classification and nomenclature of the superfamily, which excluded all forms of *Tibicen*. According to this interesting cladogram, the rich subfamily of CICADINAE has 11 tribes, including that of CRYPTOTYMPANINI, itself including *Lyristes plebejus* (see Moulds, 2005, figs. 59, 60, pp. 421, 422). In this regard, our colleague Mr. Young June Lee recently wrote in an e-mail (pers. comm., 2 September 2013, but widely distributed for the attention of cicadologists), that he voted for using *Lyristes* and suppressing *Tibicen*, and that American species could belong to one or two 'new' genera (not to *Tibicen*).

Conclusions

(1) *Cicada* Linnaeus, 1758: type species *C. orni* Linnaeus; type genus of CICADIDAE Latreille 1802. This typification, universally used, should be validated and the names should be placed on the Official Lists of Names in Zoology.

(2) *Tibicen* Latreille, 1825: vernacular name, not available (Recommendation 11A and Article 12.3 of the Code). This name should be placed on the Official Index of Rejected and Invalid Names in Zoology (Article 80.7.2).

(3) *Cicada* Berthold, 1827: type species *C. plebeja* Scopoli, 1763: not accepted by Van Duzee (1914).

(4) *Tibicen* Bertold, 1827 nomen nudum (unavailable) (Articles 12.2.5. and 67.5.3.).

(5) *Tibicen* Berthold, 1827 and *Tibicen* Van Duzee, 1914 should be placed on the Official Index of Rejected and Invalid Names in Zoology (Article 80.7.2).

(6) *Tibicen* Latreille, 1829: no type species specifically designated by the author; this generic name is a nomen dubium; Amyot & Serville (1843) considered its type to be *C. haematodes* Scopoli, 1763.

(7) *Tibicen* Latreille, 1829: cited by Amyot & Serville (1843) and Kirkaldy (1907); type species *C. haematodes* Scopoli, 1763 [not *C. plebeja* Scopoli, 1763]: designation confirmed in 1926 by Horváth, but little used and should be placed on the Official Index of Rejected and Invalid Names in Zoology (Article 80.7.2), 1763, designated by Distant (1905c).

(8) *Tibicina* Kolenati, 1857: type species *C. haematodes* Scopoli: a junior synonym of *Tibicen* Latreille, 1829, but widely used in its place. These two taxa are objective synonyms (Article 61.3.3). *Tibicina* Kolenati, 1857 (and also TIBICININAE) should be placed on the relevant Official List of Names in Zoology.

(9) *Lyristes* Horváth, 1926: type species *C. plebeja* Scopoli, 1763; subtribe of CRYPTOTYMPANINA Handlirsh, 1925 (see Boulard, 1979).

It is essential to take the name *Tibicen* out of circulation, as it and its derivatives have been ill-defined and misused in the literature. We hope that the Commission will take into consideration our proposals and will act accordingly.

Additional references for all Comments on Case 239

Amyot, C.J.B. 1847. Entomologie française. Rhyncotes. Ordre deuxième, Homoptères. Homoptera. Latr. *Annales de la Société Entomologique de France*, (2)5: 143–238.

Amyot, C.J.B. & Serville J.G.A. 1843. Homoptères. Homoptera Latr. Pp. 455–588 in: *Histoire naturelle des insectes. Hémiptères*. De Roret éd., Paris.

Berthold, A.A. 1827. *Latreille's Naturliche Familien des Thierreiches. Aus dem Franzosischen. Mit Anmerkungen und Zusätzen*. 604 pp. Im Verlage des Gr. H.S. priv. Landes-Industrie-Comptoirs, Weimar.

- Bonfils, J. & della Giustina, W.** 1978. Inventaire et répartition géographique des Homoptères Auchénorhynques de la Corse. *Bulletin de la Société Entomologique de France*, **83**: 23–29.
- Boulard, M.** 1972. Les positions génériques réelles des Cigales françaises et leur classification. *L'Entomologiste*, **38**(6): 167–171.
- Boulard, M.** 1976. Un type nouveau d'appareil stridulant accessoire pour les Cicadoidea. Révision de la classification supérieure de la Superfamille (Hom.). *Journal of Natural History*, **10**(4): 399–407.
- Boulard, M.** 1979. Cigales nouvelles des Iles Salomon et des Iles Sous-le-vent; notes biogéographiques (Hom. Cicadoidea). *Revue Française d'Entomologie, (N.S.)* **1**(2), **1979**: 49–60.
- Boulard, M.** 1984. Arguments pour la suppression du nom de genre *Tibicen* et de ses dérivés dans la nomenclature de la Superfamille des Cicadoidea. *Bulletin of Zoological Nomenclature*, **41**(3): 166–179, 181–184.
- Boulard, M.** 1985. Comment on the proposed conservation of *Tibicina* Amyot, 1847 and *Lyristes* Horváth, 1926. (2). *Bulletin of Zoological Nomenclature*, **42**: 212–214.
- Boulard, M.** 1988a. Les *Lyristes* d'Asie mineure (Hom. Cicadidae). *L'Entomologiste*, **44**(3): 153–167.
- Boulard, M.** 1988b. Nomenclature et taxonomie supérieures des Cicadoidea, ou vraies Cigales. Histoire, problèmes et solutions. *Ecole Pratique des Hautes Etudes, Travaux du Laboratoire Biologie et Evolution des Insectes Hemipteroidea*, **1**: 1–89.
- Boulard, M.** 1990. Contribution à l'Entomologie générale et appliquée. 2: Cicadaïes (Homoptères Auchénorhynques), 1. Cicadoidea. *Ecole Pratique des Hautes Etudes, Travaux du Laboratoire Biologie et Evolution des Insectes*, **3**: 55–245.
- Boulard, M.** 1991. Quelle espèce-type pour le genre *Melampsalta* Amyot, 1847 ? (Homoptera, Tibicinidae). *Nouvelle Revue d'Entomologie (N.S.)*, **8**(1): 25–28.
- Boulard, M.** 1998. Nomenclature et taxonomie supérieures des Cicadoidea ou vraies cigales. Histoire, problèmes et solutions (Rhynchota Homoptera Cicadomorpha). *Ecole Pratique des Hautes Etudes, Travaux du Laboratoire Biologie et Evolution des Insectes Hemipteroidea*, **10**: 79–129.
- Boulard, M.** 2001. Higher taxonomy and nomenclature of the Cicadoidea or true cicadas: history, problems and solutions (Rhynchota Auchenorhyncha Cicadomorpha). *Ecole Pratique des Hautes Etudes, Travaux du Laboratoire Biologie et Evolution des Insectes Hemipteroidea*, **14**: 1–48.
- Boulard, M.** 2003. *Tibicen* Latreille, 1825: «Fatal error». *Nouvelle Revue d'Entomologie (Nouvelle Série)*, **20**(4): 371–372.
- Boulard, M.** 2012. *The Cicadas of Thailand. Volume 2. Taxonomy and Sonic Ethology*. EPHE, Biologie et Evolution des Insectes. 406 pp., 97 pls. Chiang Mai, Thailand.
- Boulard, M.** 2013. *The Cicadas of Thailand. Volume 2. Taxonomy and Sonic Ethology* [modified and increased]. 436 pp., 96 pls. Siri Scientific Press, Manchester.
- Boulard, M. & Martinelli, N.M.** 1996. Révision des Fidicinini. Première partie: Sous-tribu nouvelle des Fidicinina (Cicadomorpha, Cicadoidea, Cicadidae). *Ecole Pratique des Hautes Etudes, Travaux du Laboratoire Biologie et Evolution des Insectes Hemipteroidea*, **9**: 11–81
- Boulard, M. & Mondon, B.** 1995/96 (réédité, modifié et augmenté en 1996). *Vies & mémoires de Cigales: Provence, Languedoc, Méditerranée*. 159 pp. 16 pls. Éditions de l'Équinoxe, Barbentane.
- Boulard, M. & Puissant, S.** 2013. Remarques sur certains points de nomenclature concernant la Famille des Cicadidae, ou vraies cigales. Résolution du problème “*Tibicen*, *Tibicina* and *Lyristes*.” *Ecole Pratique des Hautes Etudes, Travaux du Laboratoire Biologie et Evolution des Insectes Hemipteroidea*, **20**: 9–24.
- Boulard, M. & Weiner J.** 2001. Higher Taxonomy and Nomenclature of the Cicadoidea or true cicadas: history, problems and solutions. *Ecole Pratique des Hautes Etudes, Travaux du Laboratoire Biologie et Evolution des Insectes Hemipteroidea*, **14**: 1–48. [Translation of Boulard, 1998].

- China, W.E.** 1964. Tibicenidae Van Duzee, 1916 (Insecta, Cicadoidea): proposed suppression under the plenary powers in favour of Platyleuridae Schmidt, 1918. Z.N.(S.) 1626. *Bulletin of Zoological Nomenclature*, **21**: 154–160.
- Chou I., Lei Z., Li L., Lu X. & Yao W.** 1997. *The Cicadidae of China (Homoptera: Cicadoidea)*. 380 pp. 4, 16 pls. Tianze Eldoneio, Hong Kong.
- Distant, W.L.** 1889/1892a. *A monograph of oriental Cicadidae*. 158 p, 15 pls. Indian Museum, Calcutta.
- Distant, W.L.** 1892b. XLIX. On some undescribed Cicadidae, with synonymical notes. *Annals and Magazine of Natural History*, (6)**9**: 313–327.
- Distant, W.L.** 1904. Rhynchotal notes XXVII. *Annals and Magazine of Natural History*, (7)**14**: 329–336.
- Distant, W.L.** 1905a. Rhynchotal notes XXIX. *Annals and Magazine of Natural History*, (7)**15**: 58–70.
- Distant, W.L.** 1905b. Rhynchotal notes XXX. *Annals and Magazine of Natural History*, (7)**15**: 304–319.
- Distant, W.L.** 1905c. Rhynchotal notes XXXIII. *Annals and Magazine of Natural History*, (7)**16**: 22–35.
- Distant, W.L.** 1906. *A synonymic catalogue of Homoptera. Part 1. Cicadidae*. iii, 207 pp. British Museum, London.
- Dlabola, J.** 1958. Zikaden-Ausbeute vom Kaukasus (Homoptera Auchenorrhyncha). *Acta Entomologica Musei Nationalis Pragae*, **32**: 339–352.
- Drosopoulos, S., Eliopoulos, E. & Tsakalou, P.** 2006. Is migration responsible for the peculiar geographical distribution and speciation based on acoustic divergence of two cicadas in the Aegean Archipelago? Pp. 219–226 in Drosopoulos, S. & Claridge, M.F. (Eds.), *Insect sounds and communication*. Taylor & Francis, Boca Raton.
- Duffels, J.P. & van der Laan, P.A.** 1985. *Catalogue of the Cicadoidea (Homoptera, Auchenorrhyncha) 1956–1980*. (Series Entomologica 34). xiv, 414 pp. Dr. W. Junk Publishers, Dordrecht.
- Dupuis, C.** 1974. Pierre André Latreille (1762–1833): the foremost entomologist of his time. *Annual Review of Entomology*, **19**: 1–14.
- Dworakowska, I.** 1988. Main Veins of the wings of Auchenorrhyncha (Insecta, Rhynchota: Hemelytrata). *Entomologische Abhandlungen, Staatliches Museum für Tierkunde Dresden*, **52**(3): 63–108.
- Fieber, F.X.** 1872. *Katalog der europäischen Cicadenen, nach Originalien mit Benützung der neusten Literatur*. iv, 19 pp. Carl Gerold's Sohn, Wien.
- Fieber, F.X.** 1875. Les Cicadines d'Europe d'après les originaux et les publications les plus récentes. 1: Comprenant les familles des Membracida, Cicadae, Fulgorida, Cercopida, Ulopida, Paropida, Scarida, disposées selon la méthode analytique. *Revue et Magasin de Zoologie Pure et Appliquée*, (3)**3**: 288–416.
- Fieber, F.X.** 1876. Les Cicadines d'Europe d'après les originaux et les publications les plus récentes. 2: Description des espèces. *Revue et Magasin de Zoologie Pure et Appliquée* (3)**4**: 11–268.
- Froriep, L.F.** 1806. *C. Dumeril's analytische Zoologie. Aus dem französischen mit Zusätzen*. [1], I–VI [1–6], 1–343,[1] pp. Landes-Industrie-Comptoir, Weimar.
- Geoffroy, E.L.** 1762. *Histoire abrégé des insectes qui se trouvent aux environs de Paris; dans laquelle les animaux sont rangés suivant un ordre méthodique*. 1. xxviii, 523 pp. Durand, Paris.
- Goding, F.W. & Froggatt, W.W.** 1904. Monograph of the Australian Cicadidae. *Proceedings of the Linnean Society of New South Wales*, **29**(3): 561–670, pls. XVIII, XIX.
- Gogala, M.** 1998. Singing cicadas of Slovenia. *Proteus*, **60**: 392–399.
- Gogala, M.** 2013. *On the trail of mountain cicadas*. 176 pp. Slovenian Academy of Sciences and Arts & Royal Entomological Society, Ljubljana.
- Gomez-Menor Ortega, J.** 1957. Monografía de cicadidos (Homoptera) de España. *Memorias de la Real Academia de Ciencias*, Madrid, **19**: 1–87.
- Hamilton, K.G.A.** 1985. Comment on the proposed conservation of *Tibicina* Amyot 1847 and *Lyristes* Horváth 1926. Z.N. (S.)239. *Bulletin of Zoological Nomenclature*, **42**: 211.

- Handlirsh, A.** 1925. Ordnung: Homoptera (Latr.) Westw. (Homopteren); Systematische Übersicht (Schluss.). Pp. 1117–1185 in: *Schroder's Handbuch der Entomologie*, vol. 3(17–18). Gustav Fischer, Jena.
- Harvey, M.** 2003. *Catalogue of the amaller arachnid orders of the world: Amblypygi, Uropygi, Schizomida, Palpigradi, Ricinulei and Solifugae*. xi, 385 pp. CSIRO Publishing, Collingwood, Australia.
- Haupt, H.** 1929. Neueinteilung der Homptera-Cicadina nach phylogenetisch zu wertenden Merkmalen. *Zoologische Jahrbücher. Abtheilung für systematik, Ökologie und Biologie der Thiere. Jena*, **58**: 173–286.
- Hayashi, M. & Saisho, Y.** 2011. *The Cicadidae of Japan*. 224 pp. Seibundo-shinkosha, Tokyo.
- Heppner, J.B. & Duckworth, W.D.** 1981. Classification of the superfamily Sesioidea (Lepidoptera: Ditrysia). *Smithsonian Contributions to Zoology*, **314**: iii, 144 pp.
- Hertach, T. & Nagel, P.** 2013. Cicadas in Switzerland: a scientific overview of the historic and current knowledge of a popular taxon (Hemiptera: Cicadidae). *Revue Suisse de Zoologie*, **120**(2): 229–269.
- Horváth, G.** 1912. Miscellanea Hemipterologica. X. Cicadidarum genera palearctica. *Budapest Magyar Nemzeti Annales Musei Nationalis Hungarici*, **10**: 602–606.
- Horváth, G.** 1926. Les noms génériques de nos trois grandes Cigales indigènes. *Annales Musei Nationalis Hungarici*, **23**: 93–98.
- ICZN.** 1910. Opinion 11. The designation of genotypes by Latreille, 1810. Opinions Rendered by the International Commission on Zoological Nomenclature: Opinions 1 to 25. Smithsonian Institution Publication, **1938**: 17–18.
- ICZN.** 1924. Opinion 79. Case of Lamarck's (1801 A). *Système des Animaux sans Vertèbres*. Opinions rendered by the International Commission on Zoological Nomenclature. Opinions 78 to 81. *Smithsonian Miscellaneous Collections*, **73**: 15–16.
- ICZN.** 1939. Opinion 136. Opinion supplementary to Opinion 11 on the interpretation of Latreille's *Consid. gén. Crust. Arach. Ins. Opinions and declarations rendered by the International Commission on Zoological Nomenclature*, **2F**: 13–20.
- ICZN.** 1944. Opinion 1. The meaning of the word "indication" in proviso (a) to Article 25 of the International Code, as respects names published on, or before, 31st December 1930. *Opinions and declarations rendered by the International Commission on Zoological Nomenclature*, **1A**: 75–84.
- ICZN.** 1945. Opinion 11. The designation of genotypes by Latreille, 1810, *Consid. gén. Crust. Arach. Ins. Opinions and declarations rendered by the International Commission on Zoological Nomenclature*. **1A**: 179–190
- ICZN.** 1963. Opinion 686 (Case 1478). Amyot, Méthode mononymique: placed on the official index of rejected and invalid works in zoological nomenclature. *Bulletin of Zoological Nomenclature*, **20**: 423.
- ICZN.** 1970. Opinion 905. *Polyxenus* Latreille, [1802–1803] (Diplopoda): validation of emendation from *Pollyxenus*. *Bulletin of Zoological Nomenclature*, **27**: 6–7.
- ICZN.** 1990. Opinion 1596. *Semblis* Fabricius, 1775 (Insecta, Trichoptera): *Phryganea phalaenoides* Linnaeus, 1758 conserved as the type species, thus conserving *Sialis* Latreille, 1802 (Insecta, Megaloptera). *Bulletin of Zoological Nomenclature*, **47**: 154–155.
- ICZN.** 2006. Opinion 2165. Amyot, Méthode mononymique (1845–1847): correction to Opinion 686. *Bulletin of Zoological Nomenclature*, **63**: 284–285.
- ITIS.** 2014. Retrieved 4 January 2014 from the Integrated Taxonomic Information System (<http://www.itis.gov>)
- Kirkaldy, G.W.** 1900. On the nomenclature of the genera of the Rhynchota, Heteroptera and auchenorrhynchous Homoptera. *Entomologist*, **33**(441): 25–28.
- Kirkaldy, G.W.** 1906. Current notes. [Continued.] *Entomologist*, **39**(523): 283–287.
- Kirkaldy, G.W.** 1907. Some annotations to M. Distant's récent catalogue of the Cicadidae [Hem.]. *Annales de la Société Entomologique de Belgique*, **51**: 303–309.
- Kolenati, F.** 1857. Homoptera Latreille. Leach. Gulaerostria Zetterstedt. *Bulletin de la Société Impériale des Naturalistes Moscuo, Section Biologique*, **30**: 399–444.

- Lamarck, J.B.** 1801. *Système des animaux sans vertèbres ou tableau général des classes, des ordres et des genres de ces animaux*. 432 pp. Muséum d'Histoire Naturelle, Deterville, Paris.
- Latreille, P.A.** 1802. *Histoire naturelle, générale et particulière des crustacés et des insectes. Familles naturelles des genres*, vol. 3. 467 pp. F. Dufart, Paris.
- Latreille, P.A.** 1804. Division seconde. Famille quarante-huitième. Cicadaires; Cicadariae. Pp. 5–424 in: *Histoire naturelle, générale et particulière des Crustacés et des Insectes. Ouvrage faisant suite aux oeuvres de Leclerc de Buffon et partie du cours complet d'Histoire naturelle rédigé par C.S. Sonnini*, vol. 12. Dufart, Paris.
- Latreille, P.A.** 1810. *Considérations générales sur l'ordre naturel des animaux composant les classes des crustacés, des arachnides, et des insectes; avec un tableau méthodique de leurs genres, disposés en familles*. 444 pp. F. Schoell, Paris.
- Latreille, P.A.** 1825. *Familles naturelles du Règne Animal, exposées succinctement et dans un ordre analytique, avec l'indication de leurs genres*. 570 pp. J.B. Baillièrre, Paris.
- Latreille, P.A.** 1829. Suite et fin des Insectes. Dans: Cuvier, G.C.L.D. (Ed.), *Le Règne Animal distribué d'après son organisation, pour servir de base à l'histoire naturelle des animaux et d'introduction à l'anatomie comparée. Nouvelle édition, revue et augmentée*, vol. 5: i-xxiv, 1–556. Déterville, Paris
- Lauterer, P.** 1985. Comment on the proposed conservation of *Tibicina* Amyot 1847 and *Lyristes* Horváth 1926. Z.N.(S.)239. *Bulletin of Zoological Nomenclature*, **42**: 214.
- Lee, Y.J., & Hill K.B.R.** 2010. Systematic revision of the genus *Psithyristria* Stål (Hemiptera: Cicadidae) with seven new species and a molecular phylogeny of the genus and higher taxa. *Systematic Entomology*, **35**: 277–305.
- Lee, Y.J.** 2008. Revised synonymic of Cicadidae (Insecta: Hemiptera) from the Korean Peninsula, with the description of a new species and some taxonomic remarks. *Proceedings of the Biological Society of Washington*, **121**(4): 445–467.
- Lee, Y.J.** 2012. Descriptions of two new genera and species of Cicadidae (Hemiptera) from India with some notes on tribal classification. *Deutsche Entomologische Zeitschrift*, **59**(2): 225–231.
- Linnaeus, C.** 1758. *Systema Naturae*, Ed. 10, vol. 1. 824 pp. Salvii, Holmiae.
- Lodos, N.** 1986. *Türkiye entomolojisi II (genel, uygulamali ve faunistik)*. 580 pp. Ege Üniversitesi Basimevi Bornova-Izmir.
- Melichar, L.** 1896. *Cicadinen (Hemiptera-Homoptera) von Mittel-Europa*. Berlin, Verlag von Felix L. Dames: i-xxvii, 1–364.
- Melville, R.V. & Sims, R.W.** 1984. *Tibicina* Amyot, 1847 and *Lyristes* Horvath, 1926 (Insecta, Hemiptera, Homoptera): proposed conservation by the suppression of *Tibicen* Berthold, 1827. Z.N.(S.) 239. *Bulletin of Zoological Nomenclature*, **41**: 163–184.
- Metcalf, Z.P.** 1963. General catalogue of the Homoptera, Fascicle VIII. Cicadoidea. Part 1. Cicadidae. Section 1. Tibiceninae. *North Carolina State College Contribution*, **1502**: i-vii, 1–585.
- Moore, T.E.** 1966. The cicadas of Michigan (Homoptera: Cicadidae). *Papers of the Michigan Academy of Sciences, Arts and Letters*, **51**: 75–96, 2 pls.
- Moulds, M.S.** 1990. *Australian Cicadas*. 217 pp., 24 pls. New South Wales University Press, Kensington.
- Moulds, M.S.** 2005. An appraisal of the higher classification of cicadas (Hemiptera: Cicadoidea) with special reference to the Australian fauna. *Records of the Australian Museum*, **57**: 375–446
- Moulds, M.S.** 2012. A review of the genera of Australian cicadas (Hemiptera: Cicadoidea). *Zootaxa*, **3287**: 1–262.
- Nye, I.W.B.** 1975. *The Generic Names of Moths of the World. Volume 1. Noctuoidea (part); Noctuidae, Agaristidae, and Nolidae*. Publication Number 70. Trustees of the British Museum (Natural History), London.
- Olivier, G.A.** 1791. Cigale, Cicada. *Encyclopédie méthodique. Histoire naturelle des Insectes*, **5**: 735–760 (for publication dates see Evenhuis, N.L. 2003. Dating and publication of the Encyclopédie Méthodique (1782–1832), with special reference to the parts of the Histoire Naturelle and details on the Histoire Naturelle des Insectes. *Zootaxa*, **166**: 1–48).

- Orian, A.J.E.** 1963. A new genus of Cicadidae (Homoptera) from the island of Rodriguez with notes on nomenclature of the family. *Annals & Magazine of Natural History*, (6)**13**: 321–328, pls. XII, XIII.
- Oshanin, V.T.** 1912. *Katalog der paläarktischen Hemipteren (Heteroptera, Homoptera-Auchenorrhyncha und Psylloideae)*. xvi, 187pp. Friedländer und Sohn, Berlin.
- Pitkin, B. & Jenkins, P.** 2014. Butterflies and moths of the world: generic names and their type species. Natural History Museum online database <http://www.nhm.ac.uk/research-curation/research/projects/butmoth/> [Information retrieved on 4 January 2014].
- Puissant, S.** 2005. Taxonomy, distribution and first eco-ethological data of *Melampsalta varipes* (Waltl, 1837), an unrecognized cicada (Hemiptera, Cicadidae). *Insect Systematics and Evolution*, **36**: 301–315.
- Puissant, S.** 2006. *Contribution à la connaissance des Cigales de France: géonomie et écologie des populations (Hemiptera, Cicadidae)*. 193 pp. ASCETE, Bédailhac et Aynat, France.
- Quartau, J.A.** 1995. Cigarras, esses Insectos quase desconhecidos. *Correio da Natureza*, **19**: 33–38.
- Réaumur, R.A.F. de.** 1740. *Mémoires pour servir à l'histoire des insectes* 5. 728 pp. Imprimerie royale, Paris.
- Riou, B.** 1995. *Lyristes renei* n. sp., Cigale fossile du miocène ardéchois. *Ecole Pratique des Hautes Etudes, Travaux du Laboratoire Biologie et Evolution des Insectes Hemipteroidea*, **7-8**: 73–76.
- Sanborn, A.F.** 2008. The identity of *Cicada tibicen* Linné [= *Tibicen chloromerus* (Walker, 1850)] (Hemiptera: Cicadoidea: Cicadidae). *Entomological News*, **119**: 227–231.
- Sanborn, A.F.** 2013. *Catalogue of the Cicadoidea (Hemiptera: Cicadoidea)*. With contributions to the bibliography by Martin H. Villet. viii, 1001pp. Elsevier/Academic Press, San Diego.
- Sanborn, A.F.** [2014]. A new genus and new tribe of cicada from South America (Hemiptera: Cicadoidea: Cicadidae) with a note on the taxonomic position of *Ahomana* Distant, 1905. *Proceedings of the Entomological Society of Washington*. [in press]
- Sanborn, A.F. & Heath, M.S.** 2012. *The Cicadas (Hemiptera: Cicadoidea: Cicadidae) of North America North of Mexico*. 216 pp. Thomas Say Publications in Entomology: Monographs. Entomological Society of America, Lanham.
- Schedl, W.** 1986. Zur Verbreitung, Biologie und Ökologie der Singzicaden von Istrien und angrenzenden Küstenland (Homoptera: Cicadidae und Tibicinidae). *Zoologische Jahrbücher. Abtheilung für systematik, Geographie und Biologie der Thiere*. Jena, **113**: 1–27.
- Scopoli, I.A.** 1763. *Entomologia carniolica exhibens insecta carnioliae indigena et distributa in ordines, genera, species, varietates. Methodo Linnaeana*. 423 pp. Typis Ioannis Thomae Trattner, Vindobonae.
- Servadei, A.** 1960. Gli Omopteri (Hemiptera, Homoptera, Auchenorrhyncha) della Calabria. *Memorie del Museo Civico di Storia Naturale, Verona*, **8**: 301–333.
- Simões, P.C. & Quartau J.A.** 2013. Distribution of cicadas of the genus *Lyristes* (Hemiptera: Cicadidae) in the eastern Mediterranean area. *Biologia*, **68**(5): 961–965.
- Stål, C.** 1861. Genera nonnulla nova Cicadinorum. *Annales de la Société Entomologique de France*, (4)**1**: 613–622.
- Stål, C.** 1866. Hemiptera Homoptera Latr. *Hemiptera Africana*, **4**: 1–276.
- Stål, C.** 1870. Hemiptera insularum Philippinarum. Bidrag till Philippinska öarnes Hemipterfauna. *Öfversigt af Kongliga Vetenskaps-Akademiens Förhandlingar. Stockholm*, **27**: 607–776.
- Stucky, B.J.** 2013. Morphology, bioacoustics, and ecology of *Tibicen neomexicensis* sp. n., a new species of cicada from the Sacramento Mountains in New Mexico, U.S.A. (Hemiptera, Cicadidae, Tibicen). *ZooKeys*, **337**: 49–71.
- Sueur, J.** 2001. Audiospectrographical analysis of cicadasound production: a catalogue (Hemiptera Cicadidae). *Mitteilungen des Museums für Naturkunde in Berlin, Deutsche Entomologische Zeitschrift*, **48**(1): 33–51.
- Van Duzee, E.P.** 1912. Hemipterological gleanings. *Bulletin of the Buffalo Society of Natural Science*, **10**: 447–512.
- Van Duzee, E.P.** 1914. Nomenclatural and critical notes on Hemiptera. *Canadian Entomologist*, **46–47**: 377–389.

- Van Duzee, E.P.** 1915. A preliminary review of the West Coast Cicadidae. *Journal of the New York Entomological Society*, **23**(1): 21–44.
- Van Duzee, E.P.** 1916. *Check list of the Hemiptera (excepting the Aphididae, Aleurodidae and Coccidae) of America, north of Mexico*. xi, 111pp. New York Entomological Society, New York.
- Van Duzee, E.P.** 1917. *Catalogue of the Hemiptera of America north of Mexico excepting the Aphididae, Coccidae and Aleurodidae*, vol. 2. xiv, 902 pp. University of California Publications in Entomology, Berkeley.
- Villier, A.** 1977. Hémiptères de France. *Atlas d'Entomologie*. 301 pp. Boubée, Paris.
- Wagner, W. & Franz H.** 1961. Anchenorrhyncha (Zikaden). In: Franz H. Die Nordost-Alpen im Spiegel ihrer Landtier-Welt, **2**: 74–158.
- Westwood, J.O.** 1840. *An introduction to the modern classification of insects*, vol. 2. ix, 587 pp., Appendix 158 pp. Longman, Orme, Brown, Green & Longmans, Paternoster-Row, London.

Comment on the proposed conservation of the specific name *Onitis aeruginosus* Klug, 1855 (Insecta, Coleoptera, SCARABAEIDAE)
(Case 3612: see BZN **70**: 15–18)

Mario Cupello

Departamento de Entomologia, Museu Nacional, Universidade Federal do Rio de Janeiro, UFRJ, Quinta da Boa Vista, São Cristóvão, CEP 20940–040, Rio de Janeiro, RJ, Brazil (e-mail: mcupello@hotmail.com)

Contrary to my previous statement, the first author to transfer *Onitis aeruginosus* Perty, 1830 to the genus *Gromphas* Brullé, 1837 was Sturm (1843, p. 108), not Harold (1859). This transfer went unnoticed by Harold (1859) and all other authors who have worked with the taxonomy of *Gromphas* (e.g. d'Olsoufieff, 1924; Barattini & Sáenz, 1960, 1964; Cupello & Vaz-de-Mello, 2013) until the publication of Cupello & Vaz-de-Mello (2014, p. 399). Recognizing this, *Onitis aeruginosus* Perty and *O. aeruginosus* Klug were never congeneric, since the former species was transferred to *Gromphas* 12 years before the description of the latter. *Onitis aeruginosus* Perty is the type species of *Gromphas* by subsequent monotypy (Cupello & Vaz-de-Mello, 2014, p. 399).

Corrigendum to Case 3612

Page 16, 2nd paragraph, line 8: ‘...the type specimen of *O. aeruginosus* Klug...’ should be read as ‘...the type specimen of *O. aeruginosus* Gistel...’.

Additional references

- Barattini, L.P. & Sáenz, A.** 1960. Contribución al conocimiento de las especies del género *Gromphas* Brullé, 1854 (Col. Scarab.). *Actas y Trabajos del Primer Congreso Sudamericano de Zoología*, **3**: 21–29.
- Barattini, L.P. & Sáenz, A.** 1964. Contribution a l'étude des espèces du genre *Gromphas* (Brullé) (Col. Scarabaeidae). *Revue Française d'Entomologie*, **31**: 173–181.
- Cupello, M. & Vaz-de-Mello, F.Z.** 2013. Taxonomic revision of the South American dung beetle genus *Gromphas* Brullé, 1837 (Coleoptera: Scarabaeidae: Scarabaeinae: Phanaeini: Gromphadina). *Zootaxa*, **3722**(4): 439–482.
- Cupello, M. & Vaz-de-Mello, F.Z.** 2014. Correction of the type species of the South American genus *Gromphas* Brullé, 1837 (Coleoptera: Scarabaeidae: Scarabaeinae: Phanaeini). *Zootaxa*, **3790**(2): 399–400.

- d'Olsoufieff, G. 1924. Les Phanaeides (Coleoptera – Lamellicornia), famille Scarabaeidae – tr. Coprini. *Insecta*, **13**: 4–201
- Sturm, J. 1843. *Catalog der Kaefer-Sammlung von Jacob Sturm*. III–XII, 386 pp., pl. I–VI. Privately published, Nuremberg (Nürnberg).

Comment on *Anaphes* Haliday, 1833 (Insecta, Hymenoptera): proposed designation of *A. fuscipennis* Haliday, 1833 as the type species
(Case 3554: see BZN **68**: 122–126; **69**: 140)

John T. Huber

Natural Resources Canada, Canadian Forest Service, K.W. Neatby Building, Ottawa, Ontario, K1A 0C6, Canada (e-mail: john.huber@agr.gc.ca)

Opinion 71, relevant to Case 3554, was not included in the submission when it should have been (the senior author of Case 3554 was unaware of Opinion 71 when it was submitted for publication). In Opinion 71 (*Smithsonian Miscellaneous Collections* **73**: 16–18, 1922) the Commission ruled that the species cited by Westwood (1840) as 'typical species' were to be accepted as definite designations of genotypes for the respective genera. The implication is that in addition to setting aside Opinion 729, as requested in Case 3554, Opinion 71 must also be set aside to clear the way for the Commission to vote on the proposed change in types species. The present Comment is submitted to address that important omission by adding item (1) in the list of actions requested of the Commission. It is worth stating that Gahan & Fagan (1923, p. 12), who noted both type species designations for *Anaphes* but did not select one in preference to the other, may yet not have been aware of Opinion 71, as it was published only a year earlier. Subsequent authors mentioned and referenced in Case 3554 also did not mention Opinion 71, though some of them explicitly favoured changing the type species of *Anaphes* to the only species originally described in the genus, namely, *A. fuscipennis* Haliday. In light of Opinion 71, their treatment of *A. fuscipennis* as type species of *Anaphes* is thereby given much less import. Their thoughts on the type species of *Anaphes* were not totally irrelevant, however, because they indicate the rather strong feelings of those involved in taxonomy of MYMARIDAE that *punctum* was not the most suitable choice for type species of *Anaphes*.

The advantages of changing the type species from *I. punctum* Shaw to *A. fuscipennis* Haliday are: (1) *A. fuscipennis* is an objectively defined and recognizable species and was originally included in *Anaphes*; (2) although Haliday transferred *I. punctum* to *Anaphes* the species remained unrecognizable since its original description – neither Haliday nor subsequent workers, except possibly Graham (1982), saw the type specimen and Graham, if he indeed saw the correct specimen (since lost), identified it as belonging to *Camptoptera*; (3) Huber et al. (BZN **68**: 122–126) showed that *punctum* belonged to *Camptoptera* and designated a neotype; (4) thus, if the type species of *Anaphes* is changed to *A. fuscipennis* no nomenclatural changes need to be made to the numerous (almost 200) species of *Anaphes* described since Haliday (1833).

The disadvantage of changing the type species from *I. punctum* Shaw to *A. fuscipennis* Haliday is: because the currently accepted type species of *Anaphes* (*A. punctum*) is actually a *Camptoptera* species numerous nomenclatural changes will be required to move species now in *Anaphes* to the next available genus name, *Patasson*.

Because several *Anaphes* species are important biological control agents with considerable literature on them changing the name will be a nuisance and cause confusion not only for taxonomists but also biological control workers, even more so because *Patasson* has been used for a particular, well-defined subset of *Anaphes* and now would be used for all species of *Anaphes*.

In the interest of causing minimum disruption to and maximum stability in nomenclature the formal change of type species would be by far the best option because the advantages of doing so clearly outweigh the disadvantages.

The International Commission on Zoological Nomenclature is accordingly asked:

- (1) to use its plenary power to set aside Opinion 71, insofar as it applies to the type species of the nominal genus *Anaphes* Haliday, 1833;
- (2) to use its plenary power to set aside its previous designation (in Opinion 729) of a type-species for the nominal genus *Anaphes* Haliday, 1833 and to designate *Anaphes fuscipennis* Haliday, 1833 as the type-species of the genus;
- (3) to place on the Official List of Specific Names in Zoology, the name *fuscipennis* Haliday, 1833, as published in the binomen *Anaphes fuscipennis* (specific name of the type species of *Anaphes* Haliday, 1833);
- (4) to amend the entry on the Official List of Generic Names in Zoology for the name *Anaphes* Haliday, 1833, to record that its gender is masculine and not feminine, and its type species is *Anaphes fuscipennis* Haliday, 1833 and not *Ichneumon punctum* Shaw, 1798;
- (5) to amend the entry on the Official List of Specific Names in Zoology for the name *punctum* Shaw, 1798, as published in the binomen *Ichneumon punctum*, to record that it is not the name of the type species of *Anaphes* Haliday, 1833.

Comment on *Spracklandus* Hoser, 2009 (Reptilia, Serpentes, ELAPIDAE): request for confirmation of the availability of the generic name and for the nomenclatural validation of the journal in which it was published

(Case 3601; BZN 70: 234–237; 71: 30–38)

Scott Thomson

Museu de Zoologia da Universidade de São Paulo, Divisão de Vertebrados (Herpetologia), Avenida Nazaré, 481, Ipiranga, 04263–000, São Paulo, SP, Brasil
(e-mail: scott.thomson321@gmail.com)

Raymond Hoser has been for some time self-publishing large nomenclatural reviews for a number of taxa. Case 3601, regarding the genus *Spracklandus* (Hoser, 2009), has been brought to the Commission by Hoser himself in an attempt to oblige the larger herpetological community to recognize the availability of this name, hence confirming its validity under the Principle of Priority over another currently used name *Afronaja* Wallach et al., 2009. However, it is probable that the latter name will be used instead of *Spracklandus*, so it is proposed that the name *Spracklandus* Hoser, 2009 be suppressed, to avoid confusion.

In response to this application a number of comments have been made. Kaiser (BZN 71: 30–35) has made the argument that the publication failed under Articles

8.1.1 and 8.1.3 to be properly published as defined by the Code. Schleip (BZN 71: 35–36) agreed that this particular issue of the journal failed under Articles 8.1.1 and 8.1.3 of the Code. Wüster et al. (BZN 71: 37–38) also argued that the publication failed to meet the requirements of Article 8.1.3. However, demonstrating that a work is unpublished with respect to the Code is very difficult; it would seem that having these works rejected under Article 81.1 of the Code may be a better solution for this situation.

Besides the case in point here with *Afronaja* Wallach et al., 2009 preferred over *Spracklandus* (Hoser, 2009), other examples that demonstrate the instability and confusion include: *Malayopython* Reynolds et al., 2014 over *Broghammerus* Hoser, 2004; *Funkisaurus* and *Swilesaurus* Hoser, 2013b, both names replaced by Bates et al. (2013) by *Broadleysaurus* and *Matobosaurus*. The quality of taxonomic descriptions does not make names unavailable there being no requirement as such in the Code, but such practice has been highly criticized in the literature, for example Wüster et al. (2001).

It has been clear from recent publications (for example Kaiser et al., 2013) that many herpetologists are not prepared to use Hoser's names. Some herpetologists are trying to boycott, any such nomenclatural acts and are looking to the Commission to support them. We are heading down a path that will make nomenclatural instability the norm for decades. Many of the species involved are protected by legislation that requires a valid scientific name; this protection is diminished in the light of confusing and controversial nomenclature. A further point along the lines of how names are used was made by Williams et al. (2006). In toxinology there are safety and medical issues involved, so dual nomenclature could be potentially very harmful.

The Commission can, under the Article 81.1 of the Code, use its plenary power to set aside any name, irrespective of its status, for the purposes of stability (Article 81.1). I believe the time is at hand for the Commission to exercise its full plenary power. It is proposed that certain issues of the *Australasian Journal of Herpetology* be suppressed for the sake of nomenclatural stability, an approach supported by many herpetologists, particularly those working directly with snakes. The alternative set of proposals includes several overlapping proposals (if the Commissioners were to vote in favour of his actions (1) (b) and (3), then actions (1) (a) and (2) would be redundant) in case the Commissioners would not support (1) (b) and (3) and split their vote.

9. The International Commission on Zoological Nomenclature is accordingly asked:

- (1) to use its plenary power:
 - (a) to suppress the generic name *Spracklandus* Hoser, 2009;
 - (b) to rule that issues 1–21 of the *Australasian Journal of Herpetology* are unavailable for nomenclatural purposes in the interests of nomenclatural stability;
- (2) to place on the Official Index of Rejected and Invalid Generic Names in Zoology the name *Spracklandus* Hoser, 2009, as ruled in (1)(a) above;
- (3) to use its plenary power to place on the Official Index of Rejected Works in Zoology issues 1–21 of the *Australasian Journal of Herpetology*, as ruled in (1)(b) above

Additional references

- Bates, M., Tolley, K., Edwards, S., Davids, Z., da Silva, J. & Branch, W.** 2013. A molecular phylogeny of the African plated lizards, genus *Gerrhosaurus* Wiegmann, 1828 (Squamata: Gerrhosauridae), with the description of two new genera. *Zootaxa*, **3750**(5): 465–493.
- Hoser, R.** 2004. A reclassification of the Pythoninae including the descriptions of two new genera, two new species, and nine new subspecies. Part II. *Crocodylian*, **4**(4): 21–40.
- Hoser, R.** 2013b. A revised taxonomy for the lizard families Gerrhosauridae and Cordylidae. *Australasian Journal of Herpetology*, **21**: 3–32.
- Williams D., Wüster W. & Fry B.G.** (December 2006). The good, the bad and the ugly: Australian snake taxonomists and a history of the taxonomy of Australia's venomous snakes. *Toxicon*, **48**(7): 919–30.
- Wüster, W., Bush, B., Keogh, J.S., O'Shea, M. & Shine, R.** 2001. Taxonomic contributions in the 'amateur' literature: comments on recent descriptions of new genera and species by Raymond Hoser. *Litteratura Serpantium*, **21**: 67–79, 86–91.